Regional Board staff responses to comments on the Proposed Basin Plan Amendments for the Control of Mercury in Cache Creek
(Comment letters received between 13 May and 23 June 2005)

This document provides Regional Board staff responses to comment letters received regarding proposed Basin Plan amendments for the control of mercury in Cache Creek. These comment letters were received after the release of the public review draft version of the proposed Basin Plan Amendment Staff Report (13 May) through 23 June. Staff responses to comments received prior to 13 May are provided in another report. Comments requiring responses are included or have been summarized and are in **bold** and staff responses are in plain text. Copies of the entire comment letters are available on the Regional Board's website: http://www.waterboards.ca.gov/centralvalley/programs/tmdl/Cache-SulphurCreek/index.html or by contacting J. Cooke of the Regional Board staff at (916) 464-4672.

Comment letters were received from:

A. Cache Creek Watershed Forum (Includes Lake County Supervisors and Yolo County Supervisors), 20 April 2005
B. Department of Transportation, Division of Environmental Analysis, 8 June 2005
C. Sacramento Regional County Sanitation District (SRCSD), 8 June 2005
D. USEPA, Region IX, 8 June 2005
E. County of Yolo, Yolo County Board of Supervisors, 8 June, 2005
F. Yolo County Flood Control and Water Conservation District, 8 June 2005
G. Department of Transportation, District 1, 9 June 2005
H. John Hopkins (via email), 9 June 2005
I. County of Lake, Public Works Department, 10 June 2005
J. City of Woodland, 21 June 2005
K. Yolo County Habitat Conservation Joint Powers Agency, 21 June 2005
L. US Department of Interior, Fish and Wildlife Service (USFWS) 21 June 2005
M. Family Water Alliance, 23 June 2005

General Response to Comments

A majority of the comments received prior to and at the Regional Board Hearing were regarding the effects of the proposed Basin Plan amendment on erosion control and habitat restoration projects in the lower watershed. Many of the concerns had to do with inconsistencies and portions of the report that needed clarification and modification. There were also concerns that the requirements would cause erosion control and habitat restoration project costs to increase due to management practices and monitoring to demonstrate compliance. At the June 2005 Regional Water Board hearing, the Regional Water Board requested that staff address the concerns and prepare an implementation alternative that reassessed the requirements on erosion control and restoration projects in the lower Cache Creek watershed. The Regional Water Board members were satisfied with other sections of staff's recommended implementation plan (Implementation Alternative 2). Because most parts of Alternative 2 did not need to be changed, staff did not create an entirely new implementation alternative. Instead, staff changed components of

Alternative 2 that affected the lower watershed. The revised staff report and proposed Basin Plan amendment was released to the public on Aug 19, 2005 (August 2005 report).

Major changes in the Implementation Alternative 2 Basin Plan Amendment language and in corresponding text of the August 2005 staff report include:

- Projects in the 10-year floodplain that could cause erosion need to demonstrate compliance with the existing Basin Plan objective for turbidity. In general, turbidity monitoring should be performed for each project during the activity and the following wet season. Turbidity monitoring for projects that are part of a comprehensive resource management plan, however, may be conducted up and downstream of the management area. No mercury monitoring is required for projects in the creek channels.
- Proponents of projects in the 10-year floodplain must implement measures to control erosion related to the project, but erosion from the project is not prohibited.
- Requirements for erosion control and road maintenance in the upper watershed are clarified. Regional Board staff is responsible for identifying areas having soil enriched in mercury. Landowners must implement management practices to control erosion from anthropogenic activities. Erosion from anthropogenic activities is not prohibited.
- No increase in methylmercury from new projects that discharge to Cache Creek is defined as no increase in concentration in the creek relative to upstream of the discharge.

Other significant changes in the August 2005 version of the draft Basin Plan Amendment staff report are:

- Cost estimates are expanded to include estimates for each type of implementation action showing initial expenditure and operations and management per year.
- Evaluation of potential environmental impacts and the CEQA checklist were updated.

In the course of making the above changes, staff conferred extensively with stakeholders in the lower watershed by email and telephone. On 8 July, staff met with representatives of Yolo County and its consultants to discuss monitoring and potential impacts of the proposed Basin Plan Amendment on the County's future habitat development plans.

At the June 2005 Board hearing, the Regional Board also heard testimony about the proposed water quality objectives (fish tissue methylmercury concentrations). Several of the comment letters also discussed the proposed objectives. At the June hearing, the Regional Water Board requested staff to examine whether information about habits and prey of local bald eagles could be incorporated into calculations for the proposed water quality objectives. On 7 July, staff met with staff of the U.S. Fish and Wildlife Service (USFWS), representatives from Yolo County, and the County's mercury consultant (Dr. Slotton). Meeting participants agreed that although there are numerous observations of bald eagles dining on fish, the total diet of bald eagles in the Cache Creek watershed has not been thoroughly studied. The USFWS explained that existing information on local bald eagles is insufficient to justify changing the proposed water quality objectives. Regional Water Board and USFWS staff members are willing to reexamine the methylmercury objectives if adequate, site-specific diet information is collected.

Many of the comments below have been addressed in the August 2005 staff report. Where applicable, the staff response will refer back to this "**General Response to Comments".**

A. Responses to comments given by Cache Creek Watershed Forum (CCWF), letter dated April 20, 2005

Comment 1

The CCWF is concerned that implementation measures will impose hindrances on activities related to invasive species removal, wildlife habitat restoration, infrastructure maintenance and agriculture.

The staff report has been modified to address these concerns. Requirements for projects in the 10-year channel follow existing requirements of the 401 Water Quality Certification and the 404 permit. Please see the **General Response to Comments**.

Comment 2

The CCWF is concerned about high cost to comply with potential monitoring and remediation requirements. There is a lack of federal or state funding to help landowners, government entities or businesses to comply.

The staff report has been modified to address these concerns monitoring and remediation requirements. Please see the **General Response to Comments.**

Costs to comply with existing baseline Basin Plan requirements (for turbidity) should already be a part of project design for management practices and monitoring. Requirements for methylmercury minimization from new wetland or habitat restoration projects will need to be included in the project design and budget. Landowners in the lower watershed are not being required to actively remediate areas with elevated mercury.

Comment 3

The CCWF would like to know what are the intended benefits of the implementation measures to regulate activities along the creek, as they do not consider the RWQCB has demonstrated regulating would reduce methyl mercury accumulation in fish tissue.

Source control is the primary component of the mercury control program. There is evidence that decreasing the total mercury concentrations in sediment decreases the methylmercury production from sediment.

Comment 4

The CCWF understands that a peer-reviewed TMDL has not been made available to the public. The CCWF Steering Committee invited RWQCB staff to give a presentation on the TMDL on 25 May 2005.

Staff released a public review draft of the Basin Plan Amendment for Control of Mercury in the Cache Creek Watershed Staff Report on 13 May 2005. This document incorporated comments received from the scientific peer reviewers. The draft that was sent to the peer reviewers (November 2004 version) had been placed on the Regional Board's website and made available to the public on 28 January 2005. Staff gave a presentation and answered questions about the proposed Basin Plan Amendment at the CCWF's meeting on 25 May.

B. Responses to comments given by Department of Transportation (Caltrans), Division of Environmental Analysis, Sacramento, Letter dated 8 June 2005

Comment 1

Available monitoring data indicates that our facilities are not a major source of mercury entering the creeks. Mercury concentrations measured within our statewide storm water characterization study (CTSW-RT-03-065) averaged 37 ng/L (total). Under the California Toxics rule (CTR) criterion, the limit for mercury is 50 ng/L.

Based on a discussion with Caltrans and data from CDFG showing relatively low concentrations of mercury in soil in the East Branch, the discussion that the Caltrans project along the East Branch of Harley Gulch as potentially a significant source of mercury to Harley Gulch was omitted.

Comment 2

Caltrans is regulated under their statewide general permit to minimize pollution loads from their construction, maintenance, and development projects. Hence, Caltrans requests Basin Plan language be clarified stating that Caltrans' statewide Storm Water Management Plan is appropriate for meeting the erosion control requirements.

The proposed Basin Plan language now refers to the Storm Water Management Plan.

Comment 3 & Comment 5

Caltrans meets monitoring requirements through their practices using visual monitoring and periodic inspections. Further, their Storm Water Reports (which are available for review by the RWQCB) include best management practices for erosion minimization. Hence, Caltrans also states they also employ the highest level of management practices to control erosion in impaired watersheds.

Staff acknowledges Caltrans' particular concern and practices to control erosion from their projects near impaired water bodies. Other entities performing road construction or maintenance on paved roads are required to use Caltrans practices or practices with equivalent effectiveness to control erosion.

Comment 4

Caltrans requests that RWQCB staff change the last sentence of page 12 of the TMDL which states "Water quality and sediment monitoring is required to ensure compliance with this requirement" and replace with "Caltrans shall sample for mercury as part of their initial environmental site assessments for projects and identify areas with potentially high concentrations in their environmental documents."

The proposed Basin Plan language has been changed to read, "Water quality and sediment monitoring may be required", which allows Caltrans to continue its sampling and environmental review procedures.

Comment 5

Caltrans requests that RWQCB staff change the last paragraph on page 63, which states: "Erosion in the East Branch related to the Departments operations will also be controlled" to "Caltrans operations in the East Branch Harley Gulch watershed will continue to minimize erosion to the maximum extent practicable."

Because erosion control at Caltrans projects is part of the baseline condition, (i.e., it is already occurring), the reference to Caltrans was removed from the discussion of potential water quality improvements (Section 5.12.1).

Comment 6

Please include a phrase referencing which study define "the 10-year floodplain"

The 10-year floodplain has been further defined. In Cache Creek downstream of Capay, there is a hydrologic model that can be used to define the floodplain. Upstream of Capay, the 10-year floodplain requirements apply anywhere a 404 permit is needed.

Comment 7

Please define, in a consistent manner, "fine-grained" sediments.

This is done in Section 5.5 of the August 2005 report and in the Basin Plan Amendment language, as the sediment or soil fraction less than 63 microns.

Comment 8

Caltrans is concerned with language on Page 13, which prohibits "a net increase in erosion of mercury –enriched sediment" for new projects. Caltrans is concerned with delays and liability to their projects. For example, slope stabilization activities conducted to minimize erosion could result in short-term increases in erosion. Wet weather could halt a project. Caltrans suggests RWQCB does not require absolute erosion control, and instead that the storm water management plans include language requiring BMPs for minimizing mercury loadings.

The proposed Basin Plan Amendment language was revised to require implementation of best management practices to control erosion from road construction, road maintenance, and anthropogenic activities in areas defined by Regional Board staff as having enriched soil concentrations of mercury.

C. Responses to comments from the Sacramento Regional County Sanitation District's (SRCSD) letter dated 8 June 2005.

SRCSD provided two general comments on significant concerns and 15 detailed comments. The District forwarded a review of the statistical approach of the TMDL prepared for the District by Dr. R. Mahmood (California State University Sacramento).

Comment 1

SRCSD states that the methylmercury control program is based on a misleading premise, i.e. that control of aqueous methyl mercury at specific locations in the Cache Creek watershed will have widespread, regional benefits in reducing fish tissue mercury levels. Further, in its letter, SRCSD mentioned that Dr. David Sedlak, who peer-reviewed the TMDL, pointed out that figures 5.1 and 5.2, used to establish the relationship between aqueous methylmercury and fish tissue, do not accurately predict the effects of methyl mercury management on a regional scale. SRCSD concludes from their expert's notes (Dr. R. Mahmood) that the RWQCB staff report fails to address the significant uncertainty in predicting fish tissue levels from methyl mercury concentrations. Dr. Mahmood calculated broad 95% confidence intervals around the aqueous methylmercury goals and concluded that the goal should be expressed as a percentile instead of a point value to incorporate the uncertainty.

As a matter of clarification, Dr. Sedlak's comment was specifically related to Figures 4-1 and 4-2 of the TMDL report rather than Figures 5.1 and 5.2 of the Basin Plan staff report. Staff's response has several parts.

a. *Localized versus Regional Effect.* In this letter and in comments before the Board, SRCSD states that because methylmercury has a localized cycle of formation, uptake and degradation, control of methylmercury at specific locations will not benefit a broader region. Staff believes this statement does not describe conditions in Cache Creek. It is true that methylmercury cycles and that a portion of methylmercury formed at one site will not be present at a distance downstream because of degradation or uptake. Degradation and uptake are not immediate processes, however. The USEPA standard method for methylmercury analysis allows a water sample to be held for 48 hours in an amber bottle before analysis. Recent research in microcosms in the Delta showed a 20% decrease in 24 hours of the amount of methylmercury because of photodegradation (Byington *et al.*, 2004, CAFED Science Conference Abstract). Assuming similar rates of photodegradation for Cache Creek, most of the methylmercury formed below either the Clear Lake or Indian Valley Reservoir dam, would be present when the water reaches Capay dam less than one day later. Excepting the irrigation season, this water continues downstream to the settling basin. Methylmercury ingested by phytoplankton or zooplankton is also in transit downstream. If, as SRCSD suggests, the effects of methylmercury production and degradation are quite localized, we would expect to see spikes and lows in methylmercury concentration, interchanging across a system. Instead, concentrations in the main stem of Cache Creek increase gradually with distance downstream. Data described in the TMDL report show that methylmercury concentrations in water and fish are greatest in the lower Cache Creek (sites at Rumsey and Yolo). Sampling transects across the Delta also show gradual changes in methylmercury concentration (Foe *et al.,* 2004). Because methylmercury (dissolved or in phytoplankton) disperses with water flow from its original source and is to a large extent

conserved over 1-3 days travel time, staff believes that controlling methylmercury sources will reduce concentrations downstream.

b. Linkage Analysis. In part, SRCSD questions the regional benefits of specific methylmercury controls because of criticisms of the methylmercury water-to-fish linkage analysis. Dr. Sedlak is correct that the correlation shown in the TMDL (Fig. 4.1) between concentrations of methylmercury (MeHg) in invertebrates and water (unfiltered) used data from all sites in the Cache Creek watershed sampled by Slotton *et al.* (2004). These sites include Sulphur Creek and Harley Gulch downstream of inactive mines and Bear Creek, which seemed to exhibit higher bioaccumulation rates than other sites. The lack of a perfect correlation in the water-invertebrate relationship ($R^2 = 0.63$) indicates that factors other than the aqueous MeHg concentration influence biotic indicator (invertebrate) MeHg levels. Staff acknowledges that the role of these factors may be different at the mines versus main stem creek sites. The strong, statistically significant correlations between total aqueous MeHg and invertebrates MeHg and between MeHg in invertebrates and large, piscivorous fish, suggest, however, that if aqueous MeHg concentrations decline, a decline in biotic concentrations will follow. The same conclusion could be drawn if staff had recalculated the water-invertebrate correlation after separating Dr. Slotton's data between main stem and nearby-mine sites.

Although possibly unclear in the TMDL report, the aqueous methylmercury goal for Cache Creek was derived using data that were not collected immediately downstream of mines. The correlation between MeHg in large fish and invertebrates could only use data from sites at which large fish were present (Fig. 4-2 of the TMDL report). These sites were North Fork Cache Creek; Cache Creek at the Cache Creek dam, Rumsey, and Yolo, and upper Bear Creek. Targets for Harley Gulch, Sulphur Creek, and Bear Creek (including downstream of mine inputs) were determined separately from the main stem Cache Creek.

Based on comments received from Dr. Slotton after the peer review, staff revised the linkage analysis using a single methylmercury relationship (large fish to water) for Cache Creek, rather than the two relationships (large fish to invertebrates and invertebrates to water). The text of the Basin Plan Amendment staff report shows the new linkage and has been clarified to explain that aqueous methylmercury goals for Harley Gulch, Cache Creek, and Bear Creek were calculated using site-specific data (Section 5.1 of August 2005 BPA Staff Report). (Although the Bear Creek methylmercury goal was determined separately, it was the same as the original Cache Creek goal because of the analytical detection level limits).

c. Uncertainty in aqueous goals. Staff acknowledges the scientific value of including confidence limits in the discussion of aqueous methylmercury goals to incorporate variability. Dr. Mahmood's analysis of the confidence limits appears correct. It would be helpful if Dr. Mahmood or SRCSD provided an example of how a probability distribution can be used in a regulatory context. Staff calculated the best possible point estimate representing the range of available data. This estimate is the annual average. The directions for monitoring indicate that samples should be collected regularly during the year, avoiding the extreme runoff events. By using an average value as an aqueous goal, Staff's method recognizes the natural variability in ambient methylmercury concentrations. The periodic review is written in the proposed Basin

Plan Amendment will allow Staff to adjust the aqueous methylmercury goals, if necessary, as new data are gathered.

Comment 2

The proposed prohibition on new sources or net increases of mercury or methylmercury in the watershed should be eliminated. The staff report provides no analysis of the costs or benefits of this watershed-wide prohibition. Such a provision could lead to widespread social and economic hardship in Yolo County, without a commensurate reduction in either mercury loadings or fish tissue levels. The failure of the staff report to provide a quantitative analysis of the connection between various implementation measures (including the proposed prohibition) and fish tissue target attainment is a serious deficiency of the proposed TMDL.

The revised Basin Plan language (See August 2005 Staff report) does not contain any prohibitions related to total mercury inputs. Activities in the 10-year floodplain, road construction and maintenance in the upper watershed, and anthropogenic activities on enriched soil must limit erosion through implementation of management practices. See the **General Response to Comments**.

In revising the proposed Basin Plan Amendment, staff retained the requirement for no increase in methylmercury concentration in Cache or Bear Creeks from any new discharge (impoundment or constructed wetland). This is not a prohibition of discharge. Because Cache Creek is an impaired water body, the requirement for no increase in methylmercury from new projects is needed to prevent improvements that are occurring in the water body from being undone. The Regional Board does not intend to limit restoration or improvement projects. The TMDL and proposed Basin Plan amendments are expected to improve water quality and protect humans and wildlife that consume fish from the Cache Creek watershed. Wetlands projects are able to be flushed and discharge water to the creek, as long as concentrations in the creek do not increase.

SRCSD stated that there is no quantitative connection between targets and implementation measures. Estimated reductions in loads achieved by various control actions are provided in Table 5.4. The proposed Basin Plan language was modified to make clear that the intent of the mercury control program is to reduce overall mercury and methylmercury loads to and within Cache Creek. The link between total mercury loads and methylmercury in fish is based on quantitative relationships between methylmercury in water and fish and between concentrations of total mercury in sediment and methylmercury in water. The quantitative connection between total mercury in sediment and aqueous methylmercury observed in the laboratory and elsewhere was not extrapolated to field conditions of Cache Creek. As the District has pointed out, the roles of various factors influencing methylation differ at different sites. The exact rate constant for an equation describing aqueous methylmercury as a function of total mercury in Cache Creek sediments is not available. Staff could have assumed the concentration of total mercury in sediment is directly proportion to aqueous methylmercury (approach taken in the Clear Lake TMDL). Load reductions would then have been assigned to total mercury sources, likely necessitating a prohibition on some current and future erosion-related discharges. Staff's recommended approach is to identify and require remediation of the most concentrated sources

of total mercury (mines, enriched soils, and concentrated mine-related deposits in creek beds) in order to decrease concentrations of total mercury in sediment.

Costs of implementation activities were expanded in the August 2005 Staff report (Section 5.12.2 and Appendix J).

Comment A-1

The current load estimates presented throughout the report are inconsistent and suggest the Board staff should present a consistent analysis of load estimates.

Staff evaluated concentration and load information in multiple ways in the technical TMDL report. Some of this information is repeated in the draft Basin Plan Amendment Staff Report; the reader is referred to the TMDL report for details. The three pieces of information highlighted by SRCSD (concentrations of mercury suspended sediment at Cache Creek sites, total mercury load at Rumsey, and total mercury load leaving the settling basin) are different, but not inconsistent. The mercury load passing Rumsey is expected to be larger than that leaving the settling basin because mercury and sediment deposit between these two sites.

Staff added a reference to Table 3.4, the mercury in suspended sediment data, to the text of the draft Basin Plan Amendment staff report. Staff also included a new footnote in the August 2005 staff report explaining the basis by which the 20-year average discharge for the outflow of the settling basin was calculated and the difference with the five-year discharge.

Comment #A.2

The mercury reduction estimates are not presented in consistent terms.
Mass removed is not equivalent to a load reduction. Table 5.4 on p.61-62 indicates load reductions for "select remediation or removal of contaminated sediments..." in terms of total mass (20-200 kg for Cache Creek canyon; 20 kg at mouth of Harley Gulch). "Passive erosion…" is included in Table 5.4 as a load reduction. But in fact, this value represents the ongoing load not reduced.

A paragraph was added in Section 5.11.1 of the August 2005 staff report to clarify the following: Table 5.4 presents an estimate of the expected mercury and methylmercury removed from the watershed for projects in Alternatives 1-3. Expected removals are expressed in units of mass/time for ongoing activities, removals expressed in mass units are based on one-time mercury removal projects. As SRCSD recommended, the line for passive erosion was removed.

Comment #A-3

The expected benefits of Implementation Alternative 2 are overstated. The actions required in Implementation Alternative 2 only address a portion of 15% of the methylmercury load in the watershed. All of the Alternatives - not only the "do nothing" Alternative 1 - rely almost entirely on natural erosion processes to attenuate mercury levels in fish.
Suggested Revision 1: Remove references to monitoring, feasibility studies, and prohibitions on load increases from the list of actions to reduce mercury loads.
Suggested Revision 2: Assess the potential affect on total mercury concentrations caused by encouraging stream bank erosion of mercury-laden sediments.

SRCSD is correct that Alternative 2 relies on natural erosion to reduce mercury concentrations after controllable sources of mercury are addressed. The requirements of Alternative 2 to implement erosion control actions at road construction and maintenance projects and upper watershed lands with enriched mercury will decrease beyond the reduction from mine cleanups (15-20% of total mercury loads on an annual average). Although monitoring and feasibility studies alone will not decrease loads, they are appropriate actions that may lead to load reductions.

SRCSD suggests encouraging creek bank erosion of mercury-laden sediments. For contaminated creek beds and banks, Regional Board staff suggested that feasibility studies examine the possibilities of stabilizing or removing material instead. It is true that the implementation plan depends on erosion to remove much of the mercury-contaminated material in the Cache Creek canyon. This will be allowed to happen over a very long time. Inducing erosion or relaxing current erosion control practices would hasten the process. The faster erosion occurs, however, the faster the settling basin will fill up, allowing more mercury to enter the Delta. As it fills, its efficiency at trapping sediment and mercury will decrease. Until there are a plan and funding partners to maintain (preferably expand) the settling basin, there is a need to prolong its usefulness as long as possible.

Comment #A-4

It is misleading to state that Water Quality Objective Alternatives 3 and 4 are less protective of bald eagles (p.33 and 40). The objective alternatives are presented as variations in the methodology for calculating objectives protective of the most sensitive human and wildlife consumers of fish. Alternative 2, which represents the lowest aqueous methyl mercury objective of the four alternatives, is the most over protective, not more protective.

Suggested Revision* 1: *Discuss in the TMDL the multiple layers* of *conservative factors applied to arriving at the proposed objectives for methyl mercury content in fish tissue.
Suggested Revision* 2: *Accept comments presented by Yolo County, which provided* a *more appropriate (Alternative* 4*) calculation for fish tissue targets.

Please see Regional Board staff's responses to Yolo County's comments of 19 April and 8 June 2005 regarding water quality objectives for humans and wildlife. An interagency team of USFWS and EPA scientists developed a risk assessment methodology for the human health criterion evaluation. The RWQCB staff used a further refined version of this methodology to develop its draft TMDL wildlife targets. The USFWS has stated that the recommended water objectives are the correct ones for protecting bald eagles. Staff met with Yolo County, the County's mercury expert, and the USFWS on 7 July to discuss local bald eagles and their prey. The USFWS concluded that there is insufficient information on the diet of local bald eagles for Staff to change the recommended water quality objectives.

The TMDL report contains calculation details for the proposed water quality objectives. Staff is unsure what SRCSD means by "multiple conservative factors". The uncertainty factor in each of the reference doses for mammalian wildlife species and birds is only 3 (i.e., the reference doses are 3-fold higher than the lowest observable adverse effect level found in laboratory exposure studies).

Comment #A-5

The uncertainty in the estimated aqueous methyl mercury concentration target should be clearly described in the analysis (p.43-45). The analysis shown in the attached letter from Dr. R. Mahmood illustrates the effects of uncertainty in the regression analysis to derive a target concentration expressed as a percentile (as opposed to a point estimate). Using this approach requires developing the probability distribution of the concentration of methylmercury concentration in the aqueous phase. The inherent variability in the regression model (an effect caused by few points), severely limits its ability to predict the actual impact of reduced methyl mercury concentrations.

Suggested Revision 1: The effect* of *averaging methyl mercury concentration for each stream on the regression model needs* to *be evaluated. The averaging process should also be considered when developing* a *monitoring plan to determine the effectiveness on any implemented best management practices (BMP).
Suggested Revision 2: Develop* a *monitoring program that would allow for better prediction* of *the aqueous mercury concentration that incorporates the variability in the system.

Please see response to SRCSD's General Comment 2. In addition to the annual average concentrations that are compared to the aqueous goals, staff has aqueous methylmercury data collected at multiple Cache Creek sites in different seasons and flow regimes (Appendix G). These data show the range of variability and can be used to evaluate future data. Staff will consider any detailed suggestions on how to improve the monitoring program.

Comment B-1

Expressing the load allocations as % of existing load in Tables IV7 and IV-8 is confusing and unnecessary. The "% of existing load" values are useful for reference, but are not themselves loads. The "Acceptable Annual Load" values essentially represent the TMDL load allocations with no explicit safety factor. A 10% margin of safety is, although completely arbitrary, pragmatic. However, it is employed in a confusing manner as representing an additional source.
Suggested Revision: Replace the* "% of *existing load" column with load allocations calculated* as *90%* of *the Acceptable Annual Load, in units* of *g/yr.

Loads are expected to vary by annual water volume and climactic factors. If long-term average loads (i.e., 20 year average) were available, it would be logical to put load allocations in terms of kg/year. However the number of annual load estimates at most sites is small (The TMDL report showed two years of estimates for Bear Creek and one for Cache Creek. Methylmercury data was collected for more than one year, but because of the failure of the Rumsey flow gauge, a Cache Creek methylmercury budget was presented for one year. Staff also has data for the water year 2004 loads). The U.S. EPA has accepted prior allotments in the form of a percentage existing load. The Regional Board staff does not propose to change using a percent (%) of existing load as the allowable load allocation.

Although placed in a row with other sources, the margin of safety is not intended to represent another source. A margin of safety is necessary to satisfy federal TMDL requirements. In the

August 2005 version, Staff clarified the proposed Basin Plan Amendment tables to show that the margin of safety is not a source.

Comment #B-2

The three-part process of accomplishing reductions in methyl mercury concentrations (p.42) excludes the most relied upon process of all: natural attenuation.

The mine site tributaries are noted to represent approximately 15% of the mercury load in the watershed. The TMDL should recognize that both Alternative 1 ("do nothing") and Alternative 2 rely entirely versus predominately on natural attenuation.
Suggested Revision: Include natural attenuation in the "process" discussion, including technical support for the projected timeline (500 years)* to *attain fish tissue targets.

Natural erosion was added to the process discussion in the Basin Plan Amendment staff report. The origin of the 500-year estimate is described in the August 2005 Basin Plan Staff report, Section 5.11 under Implementation Alternative 1. It is based on the estimated time for contaminated sediment to flush out of the Cache creek canyon.

Comment #C-1

Discussions of the phased approach are inconsistent throughout the text. The processes described do not fit consistently within the phased approach, such that there is no way to tell which processes are expected to occur in phase 1 or future phases.
Suggested Revision* 1: *Remove discussions* of a *process and refer simply and consistently to implementation phases.
Suggested Revision* 2: Be *more pragmatic and coherent in presenting the phased approach.

Various sections of the Basin Plan staff report were revised to ensure there is consistency and clarity regarding discussion of implementation activities. References to a phased approach have been eliminated throughout the staff report. Descriptions of the plan's focus on addressing the most contaminated sources of total mercury were clarified.

Comment #C-2

The schedule for Phase 1 of the TMDL requires Regional Board staff to be involved with several activities that will not result in any measurable water quality benefit. The Regional Board should be concerned that this draft TMDL would reduce staff time available for the other -35 mercury TMDLs in the region that eventually need to be developed. Required actions that detract Regional Board staff from mine site remediation activities are not an effective use of available resources.
Suggested Revision* 1: *Focus phase* 1 of *the TMDL implementation plan on mine site remediation.
***Suggested Revision* 2: *Relegate all other implementation actions to phase* 2, *which should commence* 20 *years after mine site remediation has been completed. Include provisions to re-calculate appropriate targets and to consider the attainability* of *uses in developing phase* 2.**

Monitoring, planning, and investigations are all part of developing plans to improve water quality. Identifying methylmercury sources is a Regional Board priority in order to adequately ascertain possible solutions. Remediation of the mine sites may only eliminate 20% of the average annual loads of total mercury (estimate does not include prevention of loads resulting

from catastrophic erosional event). Staff considers the monitoring and identification of potential other remediation sites as important to decrease, as much possible, the time to compliance with water quality objectives. Further, staff other than the Mercury TMDL Unit staff will be working on oversight of mine site remediation.

The Cache Creek Basin Plan staff report also contains language that the mercury plan will be revisited as new information is attained (see Adaptive Implementation in Appendix I). Additionally, implementation activities described in the Basin plan will be performed concurrently rather than in a linear manner as suggested in the comments. Activities such as monitoring, conducting studies, and mine site remediation need to be performed concomitantly to provide the Regional Board a means for future Basin Plan revisions.

Comment #C-3

The TMDL compliance schedules for the Delta and San Francisco Bay downstream are to be aligned. The implementation plan for this TMDL should consider the compliance schedules imposed for those downstream water bodies.

Suggested Revision: Include information on the proposed compliance schedule for this TMDL in discussions* of *downstream TMDLs.

Discussion of the proposed compliance schedule for the Cache Creek TMDL it folds into the compliance schedule for San Francisco Bay and Delta TMDLs has been included in Section 5.12.1. Further, the proposed compliance schedule for this TMDL will also be included in the Delta TMDL report.

Proposed implementation action for Cache Creek encompass the requirements expected from the Delta and San Francisco Bay Basin Plan Amendments. Decreases in total and methylmercury leaving the settling basin will be needed to remove impairments in the Yolo Bypass and West Delta. Decreases in the concentration of mercury in fine-grained sediment will help to meet the goal of 0.2 mg/kg mercury in sediment inputs to San Francisco Bay. The five-year Basin Plan review cycle of the Cache Creek plan allows for revision, if necessary, when the Delta and San Francisco Bay amendments are finalized.

Comment #C-4

The cost estimates for all alternatives are completely unrealistic and do not reasonably fulfill the State's obligation to consider economic impacts of its regulations.

The Alternative 2 cost estimates are based on a roughly 30-year life cycle, while the compliance schedule is potentially hundreds of years. The remediation costs presented also do not include substantial monitoring, regulatory oversight, project management (e.g., data management, compliance reporting, studies, negotiations), legal liability risk minimization, and various other costs associated with the implementation plan. These factors would likely double the cost of implementing the TMDL for the mine site remediation projects alone. Costs associated with site characterizations, watershed monitoring, source tracking, feasibility studies, compliance reporting, regulatory oversight, and project-level negotiations imposed by the TMDL are likely several millions of dollars.

Suggested Revision: Present all realistic costs of implementing the TMDL, based on* a *minimum 100-year compliance schedule. Develop* a *specific public outreach implementation

plan and* a *credible cost estimate (DHS's Delta Fish Project is* a *good resource for appropriate plans and costs) given the projected 500-year timeline to accomplish fish tissue reductions.

Detailed cost estimates are now provided in Section 5.12.2 and Appendix J in terms of initial investment and annual operations and maintenance, in terms of present day costs. The estimates of mine site remediation prepared by Tetra Tech EMI ((2004) include project management, reporting, and insurance.

Comment #C-5

The District appreciates the consideration of offset programs in the TMDL. But the TMDL requirements may still make projects unattractive because of the liability risk. The District notes that there is no offset program yet developed, and recommends that staff focus near-term activities on developing a feasible offset program in collaboration with impacted permittees.

Comment is duly noted. Staff appreciates the work that the SRCSD has done to frame an offset program. Regional Board staff will continue to work with SRCSD towards developing a feasible offset program.

Comment #C-6

Requirements to measure a 95% load reduction from mine sites are unnecessary and impose a liability risk that will deter action.

The best information available on how to clean up the mercury mine sites is a report by Tetra Tech EM Inc. for Calfed. The remediation costs presented in the TMDL (Table 5.6) are largely based on the information in this report. Remediation effectiveness presented in the TMDL is based on a suggested remediation goal and anecdotal evidence that, "the total metal loading from many remediated copper and zinc mines in the Central Valley has been reduced by 90-100% (Personal communication from Regional Water Board Redding staff)."

Measuring a 95% reduction of mercury loads from mine sites would require extensive pre- and post-project monitoring. Indeed, Section 6.2 (p.71) "requires" intensive, multi-year monitoring of multiple parameters for any mine remediation project. Section 6.3.1 (p.72) is inconsistent in that it provides that "as an interim tool...mine owners could propose to frequently monitor Hg/TSS."

The purpose of monitoring mine site remediation projects elsewhere has been to provide a reasonable expectation of the ability of clean-up activities to prevent mercury transport off site. Monitoring for each project site should be prescribed based on best professional judgment and site-specific monitoring rather than dictated in the TMDL.

The text notes (p.65) that "mines in the Sulphur Creek should be able to meet reduce erosion and mercury loading by 90-95%." But anything less than 95% reduction would be non-compliant with the TMDL load allocations. One question that any potential project proponent will consider is "what if I [sic] remediate according to plan, monitor throughout, and determine that loads were reduced by less than 95%?" One could do no more, yet liability to a third-party lawsuit will remain indefinitely.
Suggested Revision: Agree prior to remediation action on* a *load reduction estimate based on existing information (e.g.,* 95%) *and have* a *goal- but do not regulate on the basis - that

accomplishing the clean-up and maintaining the project site will result in the estimated load reduction.

SRCSD indicates that the mine site costs estimates are site-specific, but the support for effectiveness is not. The Tetra Tech EMI report (2004) describes Tetra Tech's recommended remediation actions and the expected reductions in mercury loads that would result (See Tetra Tech's Chapter 9). Mine sites mercury loads come mainly from erosion of waste rock, tailings, haul roads, ore piles, and other constructed features (Churchill and Clinkenbeard, 2004; Tetra Tech, 2004). The Tetra Tech report indicates that the loads could essentially eliminate (>95% reduction) the loads by effective erosion control and waste containment. Tetra Tech describes their recommended remediation actions as feasible; Regional Board staff accepts this assessment. Staff's own experience shows that high reductions in loads have been achieved at other metal mines.

Detailed or extensive monitoring requirements for mine remediation projects are not prescribed in the Basin Plan Amendment language. The staff report does describe more detail about monitoring (Section 6). This information is intended to guide Regional Board staff preparing cleanup orders. Other monitoring language is provided to guide determining compliance with the water quality objectives.

Staff added Basin Plan amendment language to address the liability issue. The proposed language now reads, "The mine owners shall be deemed in compliance with the load allocation requirements if remedial actions and maintenance activities are conducted in accordance plans approved by the Executive officer."

Comment #C-7

Absolute requirements for no net increase or elimination of loads may be impossible to attain, thus exposing every project, regardless of size, to unreasonable liability and potentially halting any water management changes and land development.

Ultra-clean sampling and analysis methods for methyl mercury can detect trace amounts of the substance in aquatic samples. To "eliminate" the methyl mercury load would require proof that methyl mercury concentrations were not detected in water discharged from a wetland, for example. This would be impossible even for water discharged from a pristine wetland.

Suggested Revision: Remove all reference to any requirements for controls other than mine site remediation. Or, require that best management practices to minimize mercury loads from other sources be implemented

In the August 2005 Basin Plan Amendment language, Staff proposes that activities in the 10-year floodplain and on upland enriched soils be required to control erosion through management practices. There is no prohibition on loads from these activities. Please see the **General Response to Comments**.

The mine sites are required to reduce loads by 95%, instead of 100%, because staff recognized that the elimination of loads to non-detectable loads is not possible. See the response to Comment C-6 regarding liability at mine sites.

Please see response to SRCSD's General Comment 2 regarding the need to limit methylmercury inputs. The "no increase in methylmercury concentration" allows a load and clearly detectable concentration, up to the concentration in the receiving creek.

Comment #C-8

Requiring projects to control erosion is inconsistent with the primary loss mechanism of natural attenuation (i.e., stream bank erosion). Stream bank erosion and deposition processes are largely driven by the stream's turbulence and sediment load. Controlling erosion at project sites will result in reduced sediment load downstream of those areas. But the sediment carrying capacity of the streams would remain the same. The most likely result, therefore, would be increased erosion of stream banks in the main channel, not burial. Indeed, the primary mechanism expected to reduce mercury loads in the creeks is natural erosion of mercury-laden stream banks. Requiring that any stream bank project not allow that natural process to occur is inconsistent with the goal of reducing the amount of mercury-laden sediment in the watershed.

Suggested Revision: Require that best management practices be implemented for projects that could otherwise cause erosion* of *mercury-laden sediments into the creeks.

See the revised Basin Plan Amendment and **General Response to Comments**. The revised Basin Plan language requires implementation of erosion management practices for projects in the 10-year floodplain, as SRCSD suggested. The erosion control requirements are consistent with existing 404 permit and 401 Water quality Certification language.

D. Response to USEPA, Region IX letter dated 8 June 2005

Comment 1
USEPA supports the language currently contained in the draft Basin Plan on page 13 of the Staff report which sets up a workable mercury offset program.

No response needed.

Comment2
USEPA would like to work closely with staff at the RWQCB as the staff develop a workable framework for offset programs, as the staff consider any changes to the load allocations, to ensure any offset program and alternative allocation schemes meet applicable federal requirements.

Staff concurs with USEPA. The Executive Officer may consider an alternative load allocation scheme to achieve the proposed objectives and implementation plan. If an alternative TMDL allocation plan or a mercury offset program are proposed, the plans(s) would be submitted to USEPA for review and approval.

Comment 3
USEPA supports RWQCB staff's recommended Alternative 2 for Cache Creek, Bear Creek and Harley Gulch, in particular because it protects the federally listed bald eagle (at Cache and Bear creeks), and the kingfisher (at Harley Gulch) while also protecting human health.

No response needed.

Comment 4
The USEPA is concerned that report as stated doesn't demonstrate sufficiently that the TMDL for Sulphur Creek will result in attainment of the federal California Toxics Rule (CTR) criterion of 50 ng/L. (also mentioned in their letter dated 19 November 2004)

Regional Board staff understands that to be complete, a TMDL must demonstrate that the allocations will result in attainment of all applicable water quality standards, including the CTR human health criterion. Regional Board staff described the intent for completion of the Sulphur Creek TMDL in Section 4.3 of the revised Basin Plan Amendment staff report. Staff plans to prepare a second Basin Plan Amendment to remove the designation of Sulphur Creek as a source of drinking water, and proposed a water quality objective protective of beneficial uses, which will eliminate the need to meet the CTR criterion.

Comment 5
The Staff report is unclear whether the CTR total mercury criterion would be attained and maintained after the proposed allocation was achieved through the proposed implementation actions designed to achieve reductions in both methylmercury and total mercury.

Please see response to Comment 4. The proposed implementation plan is intended to meet the load allocations. The CTR will not be achieved due to natural inputs from thermal springs.

Comment 6

The USEPA notes that Regional Board staff has sufficient data to support both analysis pursuant to 40 CFR 131.10(g) to remove the MUN use and an analysis for exception from designation as a drinking water source under SB 88-63. The USEPA suggests Regional Board staff make a determination regarding application of MUN use to Sulphur Creek as soon as possible. Otherwise, the CTR criterion will apply to Sulphur Creek. Sulphur Creek will not meet the CTR criterion and the USEPA will not be able to approve the TMDL as this document cannot demonstrate applicable water quality standard can be attained.

Section 4.2.8 of the staff report discusses the municipal and industrial supply (MUN) beneficial use. The MUN beneficial use is not present in Sulphur Creek. The Code of Federal Regulations (40 CFR 131.10(g)) allows removal of a designated use if the use cannot be attained because of natural pollution. The staff report provides data that show water quality from naturally occurring geothermal springs exceeds criteria for the CTR, and Basin Plan objectives for total dissolved solids, and electrical conductivity. Staff will be working on a report which may recommend that the Board adopt a Basin Plan Amendment to modify the beneficial use of municipal and domestic supply and propose criteria that are reflective of naturally occurring mercury, TDS, and electrical conductivity and protective of other beneficial uses of Sulphur Creek. This future work should not affect USEPA's review or consideration for approval of the TMDLs for Cache Creek, Bear Creek, and Harley Gulch.

Comment 7

USEPA supports the language at the end of Section 4 (Water Quality Objectives) in the Regional Staff Report concerning implementation guidance for fish tissue objectives. Also concurs with the language in Section 5.1 (Aqueous Methylmercury Goals) concerning future waste load allocations and implementation guidance. The USEPA finds that the scientific basis of the water quality objectives and TMDL allocation schemes is well founded on the most current science of how mercury operates in the aquatic environment.

No response needed.

Comment 8

USEPA supports the TMDL allocations in percent of methylmercury loads and the proposed Margins of safety for both the Cache Creek and Bear Creek allocations.

No response needed.

E. Response to County of Yolo letter dated 8 June 2005.

The letter signed by Helen M. Thomson, Chairwoman of the Yolo County Board of Supervisors expressed several major concerns and included detailed comments prepared by Petrea Marchand, Yolo County Resources Coordinator and comments prepared by Philip J. Pogledich, Deputy County Counsel. Staff responses to the concerns expressed by Chairwoman Thomson and those prepared by Yolo County Resources Coordinator Marchand are shown first. Responses to the comments prepared by County Counsel Pogledich are given second.

General Concern 1
Yolo County Supervisors request the RWQCB extend the comment period to 90 days.

The Regional Water Quality Control Board has extended the overall public comment input period by 119 days by continuing the Board Hearing until the 20-21 October 2005 Board meeting. In response to the comments received prior to and at the hearing, Staff met with concerned stakeholders and revised the proposed Basin Plan Amendment. The revised report was released on 19 August, 62 days prior to the October hearing. In order to ensure time to prepare a written response before the hearing, staff requests that comments on the revised, proposed Basin Plan Amendment be submitted by 5 October (47-day review period). Stakeholders are assured, however, that any comments received up to and during the October hearing will be fully considered.

At the June hearing, the Regional Board determined that the public should be given more time to provide further input to the staff report. The Regional Board Chairman also acknowledged that completion of the Cache Creek TMDL and Basin Plan Amendment are high priority in order to lower mercury levels in the Cache Creek watershed such that human and wildlife health are protected.

General Concern 2
Yolo County remains extremely concerned with the impact the TMDL will have on County activities. The County shares the RWQCB's commitment to protecting wildlife and recreational values of Cache Creek. For many years, the County has devoted considerable resources to projects along Cache Creek intended to preserve these values. However, particularly to the extent that many beneficial County projects may be curtailed by the proposed TMDL, the County objects to the expenditure of public monies that the RWQCB has not demonstrated will contribute significantly to achieving the water quality objectives set by the RWQCB.

Regional Board staff listened carefully to Yolo County's concerns about the potential impact on restoration and habitat projects. Given constraints of existing permit and Basin Plan requirements, Staff worked on a proposed Amendment that would be acceptable to the County and still meet the TMDL obligations of relieving Cache Creek's mercury impairment.

In the revised Basin Plan language (August 2005), projects conducted in the 10-year floodplain must: 1) implement management practices to control erosion and 2) monitor for turbidity and report results to the Regional Board. Language related to the Basin Plan Amendment is in

concert with the objectives of the Cache Creek Resources Management Plan (CCRMP) for the control of erosion from the establishment of habitat as described in Objective 4.3-4. Since the CCRMP contains monitoring (see Action 2.4-10 in the CCRMP) and erosion control practices that should already be implemented to ensure beneficial uses are met for turbidity and to conform with the requirements for the § 401Water Quality Certification, requirements under the Basin Plan language are considered baseline conditions. The proposed Basin Plan language goes beyond the CCRMP to state that for cases in which turbidity objectives are not be met despite implementation of reasonable erosion control management practices, the project proponent must conduct projects elsewhere that offset the increased turbidity and mercury load from the initial project. In that instance, increased costs may occur from offset activities (see page I-11, in Appendix I of the staff report).

In revising the proposed Basin Plan Amendment, staff retained the requirement for no increase in methylmercury concentration in Cache or Bear Creeks from any new discharge, including restored wetlands. Because Cache Creek is an impaired water body, the requirement for no increase in methylmercury from new projects is needed to prevent improvements that are occurring in the water body from being undone. The Regional Board does not intend to limit restoration or improvement projects. The TMDL and proposed Basin Plan amendments are expected to improve water quality and protect humans and wildlife that consume fish from the Cache Creek watershed. Wetlands projects would be able to discharge water to the creek, as long as concentrations in the creek do not increase.

General Concern 3

Yolo County believes that the RWQCB has not complied adequately with CEQA or statutory requirements to consider economics.

Please see response 3b in the response to the comments prepared by County Counsel Pogledich.

General Concern 4

Yolo County questions the Regional Board proposal to regulate projects that disturb sediment with 0.4mg/kg of mercury in the fine grained fraction, when mercury in the sediment of Cache Creek watershed can range up to hundreds or thousands of times this level. Yolo County believes the RWQCB does not distinguish between areas with varying levels of mercury in the sediment, except to limit regulatory activities to the 10-year floodplain below Camp Haswell.

Suggested revision: Focus on controlling erosion from areas in the watershed with the highest known mercury concentrations. Eliminate the 0.40 mg/kg requirement and focus on identifying erodible areas with high concentrations of mercury in the soil, similar to the process described elsewhere in the TMDL.

Staff has two reasons for focusing on mercury concentration in excess of 0.4 mg/kg. First, the primary method for reducing methylmercury concentrations in fish will be to reduce the concentration of total mercury in surficial sediment that is available to be methylated. Appendix D of the revised Staff report contains more sediment data and a better listing of the data sources that staff used. Concentrations of mercury in suspended and fine-grained sediment upstream of the mined areas average 0.2 mg/kg. In the Cache Creek canyon, the highest

concentration in fine-grained sediment sampled by Regional Board staff was 12 mg/kg. Most of Cache Creek's annual mercury load comes from the canyon downstream of Harley Gulch, either from contaminated banks of Cache Creek, ungauged canyon tributaries, or both. In order to effectively reduce concentrations of mercury in creek sediment, the implementation plan cannot focus only on sediments or soils containing mercury hundreds of times higher than 0.2 mg/kg, which are at the mine sites.

The second reason for focusing on soils with mercury greater than 0.4 mg/kg is to reduce the loads of mercury transported into the Yolo Bypass, the Delta, and San Francisco Bay. The mercury Basin Plan Amendment adopted by the San Francisco Bay Regional Board assigned the Central Valley an allocation that can be met by reducing the concentration of mercury in inputs to San Francisco Bay to 0.2 mg/kg.

The revised Basin Plan Amendment is very limited in its use of 0.4 mg/kg as a "threshold concentration" for an implementation action. Regional Board staff will identify land in the Cache Creek watershed between Harley Gulch and Camp Haswell and the Bear Creek watershed downstream of the mines with soil enriched in mercury (0.4 mg/kg in soil fraction less than 63 micron). After landowners are notified by the Regional Board, they must submit information describing anthropogenic activities that potentially cause erosion and implement management practices to control erosion.

Comment 2

Yolo County suggests that rather than require no net increase in sediment load, simply require that best management practices be implemented for projects that could otherwise cause erosion of elevated mercury sediments into the creek.

The proposed Basin Plan Amendment language was revised as suggested. Please see **General Response to Comments.**

Comment 3

Yolo County requests the Regional Board staff define the phased- in implementation approach more clearly. Further they suggest the following language:
Phase 1 (2006-2011): cap mercury mines and monitor results. Identify "hot spots" and low-cost, high-benefit remediation actions in the upper watershed.
Phase 2 (2011-2016): require remediation at "hot spots" using low-cost, high-benefit remediation actions in the upper watershed.

Staff agrees that earlier references in the Staff report to a phased implementation were inconsistent. References to a phased approach have been eliminated throughout the staff report. Descriptions of the plan's focus on addressing the most contaminated sources of total mercury were clarified. Because load estimates indicate that the majority of the annual mercury load does not come from the mine sites, it is important to implement erosion control practices on other sources (road maintenance and repair, anthropogenic activities on enriched, upper watershed soils) concurrently with the mine site remediations.

Comment 4

Yolo County requests that the proposed Amendment exempt wildlife habitat restoration, bank stabilization, and invasive species plant removal from requirements for erosion control and monitoring. The County requests clarification about application of requiring erosion control plans for projects under with less than one acre of grading. Currently, erosion control plans (known as Storm Water Pollution Prevention Plans) are only required for projects with over one acre of grading. As worded the TMDL doesn't exempt the less than one-acre grading category. Projects in this category usually include wildlife restoration habitat, bank stabilization, and invasive species removal activities.

Staff is not able to exempt wildlife habitat restoration, bank stabilization, and invasive species plant removal activities from requirements for several reasons. The County is correct that under storm water pollution programs, erosion control plans are typically not required for projects smaller than one acre. The Clean Water Act (CWA), however, essentially requires all projects, past and present, to minimize erosion and discharge into surface waters. Under the CWA, compliance with water quality standards may be required of any project regardless of size that may affect water quality (CWA Section 401). Any project conducted in the 10-year floodplain that disturbs soil or sediment has the potential to increase turbidity and should be monitored to verify that the Basin Plan turbidity objective was not exceeded. The County's existing 401 Water Quality Certification for the CCRMP area requires compliance with water quality objectives and does not have a minimum project size. As the CCRMP contains actions and performance standards relating to controlling erosion from the types of projects listed by the County, staff does not expect that requiring erosion control practices for 10-year floodplain projects will create a financial hardship for project proponents.

As requested, monitoring requirements have been clarified. None of the implementation project types required to manage erosion (10-year floodplain projects, upland soils enriched in mercury, and road maintenance and repair) is required to monitor for mercury. Projects in the 10-year floodplain are required to monitor turbidity in accordance with the existing Basin Plan turbidity objective.

Comment 5

Yolo County stated that the 10-year floodplain is not clearly defined in the TMDL. ***Suggested revision Define the 10-year floodplain in the beginning of the TMDL as within the creek banks.***

Staff removed the term "active channel" from the revised Staff report and added a footnote identifying the 10-year floodplain as equal to the area for which a 404 permit would be necessary. This definition is similar to "within the creek banks".

Comment 6

Yolo County indicated that it is unclear who is responsible for monitoring and who pays. ***Suggested revision: Clarify who is responsible for any monitoring required in the TMDL. Describe the extent of monitoring required. Fully estimate any costs.***

As requested, the monitoring requirements have been clarified. Costs are estimated in the revised Section 5.12.2 and new Appendix J of the Basin Plan Staff Report. Regarding enriched

soils in the upper watershed and contaminated creek banks, the language "landowners coordinate with the Regional Board" has been removed. Regional Board staff will monitor and identify the enriched soils and contaminated creek banks.

Regional Board staff will also take the lead in monitoring fish for compliance with the water quality objectives. The phrase, "take the lead" was used because in some water bodies, other agencies or groups, such as the State Office of Environmental Health Hazard Assessment, California Department of Fish and Game, or grant recipients, monitor fish. Yolo County or other watershed entities are not required to monitor fish.

Entities required to implement manage erosion from anthropogenic activities on enriched soils are not required to monitor. Agencies performing road maintenance/construction projects may be required to monitor to demonstrate the effectiveness of their erosion management.

Proponents conducting projects in the 10-year floodplain downstream of the mines are required to monitor for turbidity. The extent of monitoring is framed in the proposed Basin Plan Amendment language (during project and in next wet season). Location of monitoring is also described (upstream and downstream of project, unless project is part of larger management plan, in which case turbidity may be monitored at boundaries of the plan area). Proponents creating new impoundments or wetlands must monitor any discharge to Cache or Bear Creeks for methylmercury.

Comment 7

The proposed Basin Plan Amendment language under the section, "Creek Sediment – Upper Watershed) is unclear. Yolo County is concerned about who will pay for studies to further refine total mercury and methylmercury sources and the meaning of the phrase, "landowners coordinate with the Regional Board". Yolo County wants clarity with the term "emphasis" as it relates to the following language in the TMDL: "As sources are identified, the Regional Board will require landowners to submit a report that evaluates engineering options or management practices to reduce methylmercury concentrations and total mercury sediment concentrations. Emphasis of the evaluations shall be on control of erosion related to or increased by human activities." Hence, Yolo County suggests the following language be integrated into the TMDL: "*The RWQCB will only regulate human activities in areas identified by these studies".*

Staff revised the proposed Basin Plan amendment language for erosion control in the upper watershed. Regional Board staff will conduct the studies. The requirement for landowners to coordinate was removed. The confusing sentence stating that "Emphasis shall be on anthropogenic activities" was replaced with clarification that the only focus is human activities that cause erosion.

Comment 8

Yolo County suggests the Regional staff clearly describe the compliance schedule for meeting the numeric objectives. Most important is to clearly describe to what extent the local entities will be expected to meet the numeric water quality objectives within the 30-year implementation time period.

Staff did not propose a 30-year compliance schedule ("Thirty years" entered discussions because it was the time frame for initial cost estimates for cleanup of mine sites). As described in the Staff Report, it may take hundreds of years before the sediment mercury concentrations decline and water quality objectives are attained. Thus it is difficult to prepare a realistic compliance schedule or progress toward fish tissue objectives expected in 30 years. In the proposed Basin Plan Amendment, local entities are not assigned methylmercury load allocations. Therefore, the local entities will not be held responsible for meeting the water quality objectives, which are linked to the methylmercury allocations. Local entities working in the 10-year floodplain are responsible for implementing erosion control practices and complying with existing Basin Plan requirements, including the turbidity objective. If the implementation plan is not successful, it will be revised.

Comment 9

Yolo County requests the staff to include in the TMDL a glossary of definitions at the beginning of the TMDL clearly defining the terms *erosion control plan, mercury control plan, 10-year floodplain*, and *other important terms*.

The term "mercury control plan" was omitted from the revised Basin Plan Amendment language and staff report. The "10-year floodplain" was defined as described in response to comment 5. The meaning of "erosion control plan" is given in the Basin Plan Amendment Staff Report Section 5.11 under Alternative 2. An erosion control plan is only required of landowners with enriched soil. Projects in the 10-year floodplain are only required to implement erosion management practices and do not need to submit an erosion or mercury control plan.

Comment 10

Yolo County requests staff define consistently the term "fine-grained" sediment, as the silt/clay fraction <63 μm (material which passes through a 63 μm sieve).

As suggested, the term was consistently defined in the August 2005 version of the Staff report.

Comment 11

Yolo County requests consistency among timeframes mentioned in the Implementation Alternatives Section and throughout part of the TMDL (pages 54-66)-regarding timeframe for passive cleanup. Yolo County suggests staff eliminate inconsistent references to time for the passive cleanup.

Yolo County also suggests that staff include a discussion of the "uncertainty of the benefits" of required actions. Their premise is that the Regional Board states in the language of their Staff report (Implementation Alternative 1) that no action would result in attainment of the objectives. Yolo County concludes that the variation in passive cleanup time estimates illustrates the significant uncertainty associated with implementation of the TMDL and that a discussion of uncertainty in terms of the estimate timeframe for passive burial) is never fully discussed in the text (Staff Report).

As suggested, estimated times for passive erosion were made consistent in the August 2005 version of the Staff report.

In the August 2005 version of the draft Basin Plan Amendment Report, staff improved the distinction between the expected outcome of Alternative 1 relative to Alternatives 2 and 3. Water quality objectives are not expected to be achieved under Implementation Alternative 1 (Page 62, May version of the draft Basin Plan Amendment staff report). Staff may have caused confusion by associating a time frame of "400 plus years" with Alternative 1 without emphasizing the "plus". Staff anticipates a time when the sediment with elevated levels of mercury will have eroded out of Cache Creek canyon. This is the 400-500 year estimate (pg 55 of the May report version). Under Alternative 1, the mine sites would continue to erode material with some of the highest concentrations of mercury in the watershed (Pg. 62 May report). Because of ongoing discharge from the mine sites, sediment in Cache Creek would not return to pre-mining levels. Thus, Staff does not expect that water quality objectives will be attained.

Staff agrees that there is uncertainty in when the mercury-enriched sediments in the bed and banks of the Cache Creek canyon will erode and pass into the settling basin and when water quality objectives will be attained. Time frame for canyon erosion is highly dependent upon the weather: more drought years than expected would lengthen the period and more wet years would shorten the period.

Comment 12

Yolo County suggests the RWQB provide a complete estimate of the costs of associated with implementation of the TMDL for 200-500 years, broken down by who is expected to pay. The county states that the Regional staff only estimated costs for the first thirty years and concludes the estimate costs were incomplete.

Please see the revised Section 5.12.2 and new Appendix J.

Comment 13

Yolo County concludes that the RWQCB has not shown that the water quality objectives ensure the "reasonable" protection of beneficial uses and the prevention of nuisance. They suggest the staff make an estimate of the benefits and costs of proposed regulations. They also request the staff demonstrate that the benefits justify the costs.

As stated in the memorandum authored by S. Vassey, Senior Staff Counsel to the State Water Resources Control Board (provided by the County with their comments), Regional Water Boards are not required to do a formal cost-benefit analysis of proposed water quality objectives. Staff has expanded the estimates of costs of the implementation activities needed to achieve the objectives.

Since the May version, staff has changed the proposed Basin Plan Amendment, significantly reducing the requirements that impact Yolo County and becoming in concert with existing permit programs. In writing and in verbal comments, representatives of Yolo County have stated that the County shares the Regional Board's commitment to improving the wildlife and recreational values of Cache Creek. Although under the proposed plan, Yolo County and other

entities implementing the CCRMP are expected to incur costs, the potential costs are less than apparently expected by the County when reviewing the May report.

Comment 14

Yolo County requests that the Regional Board staff includes evidence in the TMDL that the actions (erosion control plans) required for small anthropogenic projects along the creek will significantly reduce mercury loading and methylmercury levels, as well as projects that disturb sediment with low levels of mercury compared to the rest of the watershed. They also request the Regional Board exempt projects for which evidence shows the net benefit of the project is greater than minor additional mercury loading that may result from the project.

Although erosion control is required, monitoring and/or remediation plans specific to mercury would not be required of projects in the 10-year floodplain. For any project discharging methylmercury to Cache or Bear Creeks, methylmercury monitoring would be required. Sections 5.4, 5.7, and 5.11 of the Staff report have been changed to be consistent with the proposed Basin Plan Amendment.

The mercury TMDL implementation plan has been developed to reduce total mercury and methylmercury loading into Cache Creek and its tributaries. Total mercury is attached to sediment. Control of total mercury requires control of contaminated sediment. Erosion control programs are one of the most important measures of controlling the erosion of contaminated soils from stream banks. Staff has reviewed portions of the CCAP (Cache Creek Area Plan) and has met with Mr. Jan Lowery from the Cache Creek Conservancy. The County's and the Cache Creek Conservancy's plans for erosion control are consistent with staff's proposed plan to limit erosion.

The Basin Plan has existing water quality objectives for suspended material, sediment, and turbidity. Projects in the watershed that involved disturbance of erodible materials are expected to comply with the existing water quality objectives. Staff is not proposing new objectives for these constituents.

The Basin Plan language, as written, applies to projects that would result in increased erosion in mercury-enriched areas. It generally would not apply to the minor projects mentioned, such as 'replacement of road signs, extension of metal-beam guard rail, open-graded asphalt concrete over-lay'. The Statewide Construction General Permit does not require projects less than 1-acre to submit a Notice of Construction. However in mercury enriched areas, it is necessary to have more stringent controls for erosion of soils containing mercury to comply with the requirements of the TMDL. The federal Clean Water Act does not specify a minimum size limit for a requirements on a project that may affect water quality. The Porter-Cologne Water Quality Control Act Section 13260 gives the Regional Board the authority to regulate any discharge of waste. The application for a 401 Water Quality Certification permit is, in effect, a report of waste discharge.

Comment 15

Time periods for implementation plan and achievement of water quality objectives are inconsistent. Yolo County suggests the staff complete a 200-500 year implementation plan. Alternatively, clearly specify in the TMDL the level of reduction of methylmercury in fish tissue that the RWCQB expects to achieve in the 30-year timeframe.

Staff has revised the cost estimates to include initial expenditure and annual operations and maintenance. The cost estimated can be extrapolated through any desired time frame. Some initial cost estimates had a 30-year time frame because the Tetra Tech report estimated costs for mine cleanups to 30 years.

Comment 16

Yolo County notes that there is insufficient evaluation of implementation alternatives and associated costs. They recommend the staff provide six (rather than three) implementation options to demonstrate differences in the costs of implementation options. Further Yolo County suggests the RWQCB should provide more evidence of the contribution of these different implementation alternatives to meeting the water quality objectives. When a Regional Board member asked staff about the difference in the implementation costs between achieving 0.23 and 0.30 mg/kg of methyl mercury in fish, staff replied it would be small. Yolo County however differs in their understanding that this is the case only because the implementation time frame is 30 years. If the staff were to look at the costs over a timeframe of 200-500 years the costs over the life of achieving the numeric water quality objectives the costs would be substantially different.

In the Appendix J of the August 2005 draft Basin Plan Amendment report, staff provided estimated costs for each type of implementation action. To calculate the estimated cost for a different set of implementation actions (other than in implementation Alternatives 2 and 3), the reader can use the information in Appendix J, which is separated by type of action. If requested by Board members during a hearing, Staff could also use Appendix J to estimate the cost of a new combination of activities. Staff felt that this approach would be more efficient than adding 3 new implementation alternatives to a lengthy report.

Staff also revised the discussion of costs of different alternatives for water quality objectives (Section 4.2.4). A number of costs would not change if the Board selected a methylmercury objective of 0.30 mg/kg rather than 0.23 mg/kg. Mine site remediations must be maintained at a high level no mater what the water quality objective, to prevent the mines from being nuisances again. Erosion control for projects in the 10-year floodplain, Caltrans road maintenance and repair, and some projects on enriched soils would continue as mandated through permits and other programs. Monitoring for turbidity after floodplain projects should continue also, as part of the requirement of a 401 Water Quality Certification.

Some costs originate with the Basin Plan Amendment and are expected to continue until water quality objectives are met. These include: erosion control that is required of activities on enriched soil that do not have other permit requirements, monitoring fish for compliance with the objectives, and public outreach and education. Requirements for monitoring methylmercury

discharges from new wetlands or impoundments may also cease or be less frequent. Annual costs are estimated at a total of $26,200 for these activities (See Appendix J).

Comment 17

Yolo County suggests the TMDL should clarify who is responsible for monitoring, the level of monitoring required, and that it contain estimate costs to local entities. They note that there is no estimate of monitoring costs to landowners and project proponents. They state that staff's estimate of the cost of analysis of samples for methylmercury is too low.

Monitoring requirements have been clarified as to who is responsible and the level required. Revised cost estimates for monitoring to be conducted by project proponents are provided in Section 5.12.2 and Appendix J. Staff included estimates for sample collection, analysis, and data evaluation.

Comment 18

Yolo County suggests the RWQCB provide a complete estimate of monitoring costs for the RWQCB over 200 to 500 years compliance period rather than the current one to two years mentioned. The Staff estimates that only 800-1680 samples would be collected and analyzed in Cache creek sediment over 1-2 years.

In response, staff provided revised costs for monitoring that include initial and annual costs. Staff included costs for monitoring fish tissue for compliance.

Comments 19 and 20

Yolo County considers that the presentation of various alternatives for Water Quality Objectives are misleading as stated and should be revised. They recommend the use of Alternative 4 with some language changes and deletion of Alternative Objective 3, which focuses on using US EPA's recommended criterion for human health as applied for the protection of people eating mainly trophic level 4 fish. Yolo County believes that Alternative 3 is a misinterpretation of USEPA's recommended criterion for the protection of human health.

If Staff does not eliminate Alternative 3, Yolo County states that the order of the four alternatives should change and staff should revise descriptions of Alternatives 2, 3, and 4 with wording provided by the County.

Regional Board staff retained the order and phrasing of all the alternatives for water quality objectives. While staff appreciates the careful review and suggestions, staff did not wish to confuse readers who were already familiar with the order of the objectives in the report and did not see added benefit to changing now.

Yolo County writes, "Presentation of the human health-based criteria should be consistent with the intentions of the National Criterion and assume a combination of species and trophic levels, as had been done in Alternative 4." Actually, the USEPA did not release the human health criterion with "intentions" of how to apply it. The USEPA strongly recommends the use of site-specific consumption information when interpreting the criterion, but does not indicate that a

mixture of trophic levels must be used (USEPA, 2000; 2001). Most of the fish caught and kept in Cache Creek are bass and catfish, which are TL4 species. It is appropriate to offer Alternative 3 that reflects consumption of only TL4 fish.

Comment 21
Yolo County suggests the staff should recommend Objective Alternative 4.

Because Objective Alternative 4 does not fully protect wildlife species, staff did not recommend that the Board adopt it. One of the Cache Creek beneficial uses currently impaired by mercury is wildlife habitat. Water quality objectives selected by the Board must protect wildlife species. In particular, after the Regional Board adopts objectives, the USEPA and the USFWS will evaluate the objectives as to whether they protect threatened and endangered (T&E) species. The T&E species of greatest concern for mercury impairment is the bald eagle. Regional Board staff is recommending water quality objectives that will fully protect T&E species.

Comments 22-25
Yolo County states that objective alternative 2 fish criteria needs revision to recognize that the diet of local bald eagles is dominated by fish consumption. Specifically, the calculations relating to the presumed portions of fish-eating and non-fish-eating waterfowl eaten by bald eagles need to be revised. The proportion of TL4 fish presumed in the bald eagle diet should also be decreased, based on the results of a Northern California Study.

Please see Regional Board staff's responses to similar comments from Yolo County and their consultant, Dr. Slotton, that were sent to the Board on 19 April 2005 (http://www.waterboards.ca.gov/centralvalley/programs/tmdl/Cache-SulphurCreek/index.html).

The County is basing their criticisms of Regional Board staff's method of calculating methylmercury safe levels of bald eagle on numerous, personal observations of bald eagles consuming fish in Cache Creek and on surveys that showed certain waterfowl are in the watershed only for a short period each year. On 7 July, Regional Board staff met with the USFWS, Yolo County, and Dr. Slotton to further discuss the bald eagle safe levels. At the meeting, the USFWS stated that, while valuable, the field observations cited by Yolo County do not provide a complete picture of bald eagle dietary habits in the Cache Creek watershed. Although Dr. Slotton has not observed bald eagles consuming waterfowl, it should be assumed that waterfowl are taken. The meeting participants agreed that a thorough study of consumption by local bald eagles was lacking. Until a study is complete, the USFWS advised Regional Board staff that there is no need to change the proportions of TL3 fish, TL4 fish, and waterfowl in their calculations.

The diet proportions used by Regional Board staff came from the same Northern California study (Jackman *et al.*, 1999) mentioned by Yolo County. Staff used the averages of diet proportions reported for 56 nesting territories for 5 categories of prey items: TL3 fish, TL4 fish, non-fish eating waterfowl, fish-eating waterfowl, and other, non-mercury containing prey (mainly mammals). Yolo County asks that staff lower the proportion of TL4 fish consumed by bald eagles, to use the proportions of only TL3 and TL4 fish, and to assume that waterfowl are

not eaten. Staff does not believe that Yolo County's suggestion is a fair representation of the Northern California data. Jackman and colleagues found that bald eagles in each of the waterways studied consumed birds. Total bird consumption ranged from 7.4 to 70.6% of the bald eagle diet.

On 7 July, the meeting participants also discussed Yolo County's concerns that the multipliers used to relate methylmercury concentrations in birds to concentrations in fish were seemingly too high. USFWS staff explained that they had recommended multipliers to Regional Board staff, based on multiple reports of concentrations of methylmercury in waterfowl and their prey. The USFWS evaluation of trophic level multipliers for birds consumed by bald eagles have undergone scientific peer review and been published.

Comment 26

Yolo County recommends linkage of fish mercury concentrations to methylmercury target concentrations in water should include other fish criteria levels in addition to those of Boards staff's preferred Alternative 2. They suggest that the target water concentrations corresponding to Alternative 4 fish criteria should also be presented.

Staff has calculated the methylmercury concentrations that are associated with each Water Quality Objective alternative and will have this information available at the Hearing, should the Board wish to consider Alternative 3 or 4 in greater detail. Figures 5.1 and 5.2 display the equations of each relationship between methylmercury in water and fish. Readers may use these equations to calculate aqueous methylmercury levels linked to each possible objective.

Comment 27

Yolo County recommends that methyl mercury load allocations should include other fish criteria levels in addition to those of the Board staff's preferred Alternative 2 (as revised based on Comments 22-25).

Staff has calculated the methylmercury load allocations that are associated with each Water Quality Objective alternative. Staff will be prepared to present this information at the hearing, if requested by Board members.

Comment 28

In page ii of the executive summary, Yolo County finds includes staff recommendations of Objective Alternative 2 wording misleading and recommends the following additions of underlined text and omission of the strikethrough text:
The consumption range of 22-40 g/day… "is ~~slightly more than~~ approximately double the USEPA default consumption rate (17.5 g/day) used in ~~Alternatives 3 and 4~~ human health calculations and corresponding to the 90th percentile angling fish consumption.

Regional Board staff retained the original wording of this sentence. Water Quality Objective Alternative 2 would allow consumption of 22-40 g/day of local fish, depending upon the species and trophic level of fish chosen. If only eating TL4 fish, the Alternative 2 objective would allow safe consumption of 22 g/day, which is not double 17.5 g/day. USEPA's default consumption

rate of 17.5 g/day was used as the basis for objective Alternatives 3 and 4. The default rate does not represent the 90th percentile rate of fish consumers. Rather, it is the 90th percentile rate for the general population including non-consumers of fish (as reported in a national dietary survey).

Comment 40

Yolo County is concerned that wording related to potential water discharges from "off-channel" habitat restoration projects be consistent throughout the report. Yolo County understands that taken literally the initial language precludes the flow of any amount of water from any project to Cache Creek because of the no net increase requirement in Cache Creek mercury concentrations. This is contrary to Staff's expressed intent that the methylmercury concentrations in the receiving creek not increase because of project flow. They recommend revisions in the Executive Summary and proposed Basin Plan language.

As requested, text in Section 5 of the Staff Report and the proposed Basin Plan Amendment language (Appendix I) clarify that methylmercury concentrations shall not increase due to flow from a new wetland or impoundment. The Executive Summary was not changed because it is intended to be a general description of the possible actions (for example, the Executive Summary does not contain the mercury allocation for the mine sites). Regulations will not be based the Basin Plan language, not on words in the Executive Summary.

E continued. Response to Yolo County letter date 8 June 2005 by Deputy Counsel Pogledich.

Comments are provided on the legal shortcomings of the proposed Basin Plan amendment and the process employed by Regional Board staff. The County objects to any action by the Regional Board to amend the Basin Plan until these issues are addressed in the manner required by California law.

The California Environmental Quality Act

CEQA Comment 1

A certified regulatory program governs the preparation of environmental review documents required for planning actions, and such substitute documents must be the "functional equivalent" of the environmental documents required under CEQA. Id. at p. 74; CEQA Guidelines § 15251(g). The County believes that the Staff Report, which contains analysis that appears equivalent to a negative declaration, fails to satisfy numerous substantive requirements of CEQA and the certified regulatory program.

Section 21080.5 of the Public Resources Code provides that the Secretary for Resources shall certify a regulatory program of a state agency as being exempt from the requirements for preparing EIRs, Negative Declarations, and Initial Studies if the Secretary finds that the program meets the criteria contained in that code section. The Secretary for Resources has certified the water quality control planning program of the Regional Board as an exempt regulatory program. See Title 14 California Code of Regulations (CCR) Section 15251(g).

The CEQA Guidelines do not require that the "substitute documents" be the "functional equivalent" of the environmental documents required under CEQA. Title 14 CCR Section 15252 specifies that the document used as a substitute for an EIR or Negative Declaration in a certified program shall include at least the following items: (1) A description of the proposed activity, and (2) Either: (A) Alternatives to the activity and mitigation measures to avoid or reduce any significant or potentially significant effects that the project might have on the environment, or (B) A statement that the agency's review of the project showed that the project would not have any significant or potentially significant effects on the environment and therefore no alternatives or mitigation measures are proposed to avoid or reduce any significant effects on the environment. This statement shall be supported by a checklist or other documentation to show the possible effects that the agency examined in reaching this conclusion." The Staff Report meets these requirements.

CEQA Comment 2

The environmental analysis of Regional Board staff is based on, and thus limited by, the vague, shifting, and incomplete description of the "implementation program".

Regional Board staff has worked diligently to clarify and, in many cases, change the proposed Basin Plan language in response to the County's concerns expressed verbally, by email, and in letters. Staff met with representatives of the County four times during the Basin Planning process to listen to concerns and explain Staff's proposals. Staff clarified many of the "uncertain or poorly defined components" of the implementation alternatives in the Staff report version

prepared for the 23 June public hearing. Following comments made at the hearing, Staff prepared the August 2005 version of the Basin Plan Amendment Staff Report, which contains additional revisions to clarify requirements and parties responsible for monitoring and implementation actions. Please see the **General Response to Comments** regarding the revisions.

Staff has proposed an implementation program that identifies the sources that will be affected by the control program, identifies some reasonable methods of compliance, and performed an analysis of these methods. The Regional Board does not specify the manner of compliance and, thus, provides flexibility to the affected dischargers on specifically how to comply with Regional Board requirements.

CEQA Comment 3

The Staff Report focuses narrowly on water quality issues and largely ignores other potential environmental effects.

Staff has reevaluated the potential environmental effects of the proposed Basin Plan Amendment and revised the CEQA checklist. Some projects discussed in the proposed Amendment already have a "baseline", for which potential environmental effects should already have been addressed. Baseline of projects includes compliance with existing Basin Plan requirements for controlling erosion and limiting turbidity. The Staff Report focuses on proposed new requirements to monitor and control methylmercury and total mercury. As part of the environmental analysis, Staff evaluated the potential impact of these requirements on public services, agriculture, and other issues described in the CEQA checklist.

3a. First, the environmental analysis does not fully consider the impact of the proposed Basin Plan amendments on agricultural resources, even though the proposed implementation plan contemplates a moratorium on certain agricultural land uses such as grazing (Staff Report, pp. 12,49, 58). This analysis is also deficient because there is no indication that Regional Board staff have considered the potential geographic extent of a grazing moratorium, identified any active rangeland operations that could be impacted, or otherwise assessed the practical effect of a moratorium. Without such analysis, there is no factual basis for a conclusion that the proposed amendments will have "no impact" on agricultural resources.

The US Bureau of Land Management is implementing the grazing moratoriums. The US Bureau of Land Management permits grazing operations on federal lands in the Cache Creek watershed. If the US Bureau of Land Management chooses to no longer allow grazing on property under their jurisdiction, this would not constitute a project under CEQA and no environmental analysis is required. This subtle point is clarified in the August 2005 version of the Staff Report. Staff is not proposing any prohibitions of grazing.

3b. Second, the proposed Basin Plan amendments will have significant effects on biological resources that have not been not identified or discussed in the environmental analysis prepared by Regional Board staff. The proposed implementation alternatives (to the extent their details can be discerned) may curtail the County's ongoing efforts to remove

invasive plant species, restore wildlife habitat, and accomplish other environmentally beneficial activities such as those detailed in its "Cache Creek Resource Management Plan" ("CCRMP"). At least in part, this is because the proposed amendments may drastically increase the cost of such projects, rendering them infeasible. This consequence may be unintended, but it cannot be overlooked. To facilitate a complete analysis of the impact of the proposed amendments on biological resources, Regional Board staff should consult with the County to develop information about the potential curtailment of these activities and the resulting detriment to biological resources. Otherwise, potentially significant environmental effects of the proposed Basin Plan amendments on biological resources will be improperly ignored, thus preventing an analysis of potential mitigation (such as an exemption for wildlife habitat restoration, invasive weed removal, and certain erosion control projects).

The County is claiming that the Regional Board must evaluate effects of the proposed Basin Plan Amendment on improvements in biological resources that are expected to occur when the CCRMP is implemented. Because the CCRMP does not specifically identify sites or plans for wetlands restoration projects that the County intends to conduct or the future benefits to biological resources from the project (beyond "general improvement"), it was difficult for Regional Board staff to respond in greater detail to this request. Please see Staff's response to Comment 3c below for Staff's explanation of why the proposed Basin Plan Amendment is not expected to significantly impact the scope or cost of projects envisioned by the County.

3c. Third, the environmental analysis does not fully identify and discuss the full range of potential effects of the proposed Basin Plan amendments on geology and soils. Regional Board staff should consult with the County to ascertain the extent to which erosion control projects (including components of the CCRMP) may be prevented (by increased costs) or affected by the proposed amendments, resulting in a potentially significant adverse environmental impact that has not yet been considered.

Staff does not anticipate significant adverse effects on efforts of the County or others to promote of biological resources or protect the existing soils and geology. At the request of Regional Board members and the County, the proposed Basin Plan Amendments identifies an implementation program designed to minimize impacts on the types of projects identified in the CCRMP. Please see the revisions to the proposed Basin Plan Amendment (August 2005 version) for requirements for projects in the 10-year floodplain and new wetlands. Under the revised Basin Plan Amendment (August 2005 version), Staff believes that there are no significant, adverse effects on the County's erosion control, habitat development, invasive weed removal, or other projects.

The practices that are identified in the implementation program for projects in the 10-year floodplain, specifically controlling erosion resulting from the project and monitoring turbidity, should already be part of all restoration and invasive removal practices that the County conducts. Controlling erosion and complying with Basin Plan water quality standards are currently required under the 404 permit and 401 Water Quality Certification, respectively. The CCRMP contains goals and actions for minimizing erosion and monitoring turbidity. Following are examples from the Revised Final CCRMP of August 2002:

CCRMP Goal 2.2-3: Coordinate land uses and improvements so that the adverse effects of flooding and erosion are minimized.
CCRMP Goal 4.3-4: Ensure that the establishment of habitat does not significantly divert stream flow or cause excessive erosion or damage to nearby structures or property.
CCRMP Action 3.4-3. Provide for annual (or more) testing of surface water quality of Cache Creek at Capay and Yolo. The sample collection should include "first flush". County should enlist assistance of other agencies, but should not rely on others to complete monitoring. Testing should include turbidity, mercury. Testing should also be conducted near projects prior to, during, and after construction/completion (i.e., at first high flow inundation) to detect any potential non-compliance with Regional Water Quality Control Board Water Quality Objectives. The testing program(s) should be designed to measure all constituents for which there are RWQCB numeric and/or narrative regulatory limits."

Staff does not expect that the proposed Basin Plan Amendment will "drastically increase" costs for the County's CCRMP projects, erosion control, or other environmentally beneficial activities. The requirements for projects conducted in the 10-year floodplain should be part of the project's baseline costs. Monitoring for turbidity and the up and down stream ends of the area covered by the CCRMP is the only monitoring that would be required for these projects under the proposed Basin Plan Amendment. Regional Board staff listened carefully to explanations by Yolo County and their technical advisor that the County and evaluates proposed projects with respect to their effect on the creek as a whole and promotes projects that proactively address erosion hazards. Staff's proposed implementation plan is intended to be in accord with these goals.

Requirements for methylmercury minimization from new wetland or habitat restoration projects will need to be included in the design and budget for restoring wetlands. However, Regional Board staff does not expect that wetland restoration or improvement projects would be prevented. Wetlands projects would be able to discharge water to the creek, as long as concentrations in the creek do not increase. In discussions with Yolo County and the Cache Creek Conservancy, Regional Board staff was told that the wetlands to be created in areas currently being mined for gravel are anticipated to be off-channel and that continuous or frequent discharge from the wetlands to Cache Creek would not be necessary.

3d. Fourth, the environmental analysis does not fully consider the related effects of the proposed Basin Plan amendments on hydrology and water quality. To the extent that the proposed amendments could increase erosion, as discussed above, hydrology and water quality could be detrimentally affected. These impacts need to be evaluated in the Staff Report, and without such analysis the Staff Report is legally deficient.

As noted in the response above, the implementation program requires the control of mercury through the control of erosion. The implementation program is not expected to increase erosion. Therefore, hydrology and water quality will not be detrimentally affected. Instead, hydrology and water quality are expected to be positively affected in the long term as currently described in the environmental analysis.

3e. Fifth, the environmental analysis fails to identify and discuss certain effects of the proposed Basin Plan amendments on land use and planning or population and housing, even though the Staff Report notes that "[l]and uses that might be affected by this project could include agriculture, grazing, road building and maintenance, and construction activities at areas with elevated mercury concentrations." Staff Report, p. 93. To satisfy CEQA, the Staff Report must do more than simply state that these land uses "might be affected." Further analysis is critical to support the proposed conclusion that the proposed Basin Plan amendments will have "no impact" on land uses, particularly as the Staff Report concludes that many land uses "might be affected." Without this analysis, the Staff Report is deficient and fails to satisfy CEQA. Such further analysis should, at a minimum, include consultation with County staff and an analysis of the CCRMP, as well as consideration of the issues referenced in the above comment relating to agricultural resources. It should also consider the degree to which active gravel mining operations might be affected, and consistency with the County's gravel mining regulations should be analyzed.

Regional Board staff has corrected the CEQA checklist. Discussions of potential impacts of the proposed amendment on agriculture and grazing, and road building and maintenance are now presented under sections on the agricultural and public services impacts, respectively. Activities related to reducing mercury loads will not directly cause future land use decisions to be altered, but may require that management practices be implemented for certain land use activities. The revised Basin Plan Amendment does not directly impact land use and planning.

Note that an initial version of the proposed Basin Plan Amendment contained a prohibition on increased erosion from mercury-enriched areas. This prohibition could have impacted land use and planning by affect land use conversions such as from grazing to urban or grazing to croplands. Staff removed the prohibition from consideration.

3.f. Sixth, the impact of the proposed Basin Plan amendments on public services has not been fully evaluated. As noted, an unintended consequence of the proposed Basin Plan amendments is a potentially significant increase in the cost of, among other things, carrying out routine road maintenance and stream bank erosion control projects. To the extent the County devotes staff and financial resources to carry out these projects at an increased cost, whether voluntarily or under compulsion by the Regional Board, resources from other public services provided by the County may have to be redirected. The vague nature of the proposed implementation alternatives and other aspects of the Basin Plan amendments makes it difficult, if not impossible, for the County to fully understand what will be required of it. This uncertainty prevents the County from determining the impact of the proposed amendments on County resources and, in turn, County public services. Regional Board staff should therefore clarify what will be required of the County and then, in consultation with County staff, assess the degree to which the County's ability to provide public services will be impacted by the resulting diversion of the County's finite fiscal and staff resources to activities necessary to comply with the proposed Basin Plan amendments.

The impact of the amendment on road maintenance has been added to the environmental analysis. As new projects are started, Caltrans and the County will be expected to implement

management practices to assure that erosion is controlled to the maximum extent practicable. According to R. Moore, Deputy Director of Public Works for Yolo County, the County has already begun implementing improved erosion control practices on its unpaved roads (Email from R. Moore to J. Cooke, 9 August 2005). The County's decision to improve erosion control was made independently of the Regional Board's mercury control proposal. Deputy Director Moore estimated a moderate increase in annual road maintenance costs as a result of improving erosion control (See Appendix J of the August 2005 Staff Report).

Impacts of the proposed amendments to the County's stream restoration projects have been addressed in the response to Comment No. 3b and 3c.

CEQA Comment 4

The Regional Board simply cannot conclude that "the proposed project has no potential for adverse effect, either individually or cumulatively, on wildlife or the environment," as urged by Regional Board staff. Staff Report, p. 96. The Staff Report fails to satisfy the basic substantive goal of CEQA: identification and discussion of the environmental effects of a proposed project and ways to reduce or avoid such effects. Further analysis of the effects noted above must be conducted, and an environmental impact report or its functional equivalent must be prepared. This approach is critical, as it may identify certain measures that can be taken to reduce or avoid some of the significant environmental effects of the proposed Basin Plan amendments. Unless these steps to comply with CEQA and the certified regulatory program are taken, any action taken by the Regional Board to adopt the proposed Basin Plan amendments will be invalid.

As described in the responses above, Staff changed the proposed Basin Plan Amendment and accompanying description and evaluation in the Staff Report and CEQA checklist since Yolo County Counsel reviewed the documents. Staff believes it has ameliorated the County's concerns of significant impacts and cost of the proposed implementation plan and has met all of the requirements for environmental review required of a certified regulatory program.

Economics Comment 1

California law requires the Regional Board to consider economic factors in connection with the development of TMDLs. A general problem with the limited economic analysis contained in the Staff Report is that the implementation alternatives and certain other components of the proposed Basin Plan amendment have not been fully developed. This prevents a sound analysis of the economic effects of the amendments. For this reason, the Regional Board should not take any action on the proposed Basin Plan Amendment until these deficiencies are addressed.

Staff has better defined the responsibilities and requirements of the proposed implementation actions. These changes occurred since the Yolo County Counsel reviewed the proposed Basin Plan Amendment. The changes and clarifications are provided in the August 2005 version of the documents. Please see the **General Response to Comments** and Staff's detailed responses to comments from Yolo County.

Economics Comment 2

As the Regional Board is aware, it is authorized to establish water quality objectives that, in its judgment, "will ensure the reasonable protection of beneficial uses and the prevention of nuisance." Water Code § 13241 (emphasis added). In establishing water quality objectives, the Regional Board must consider "water quality conditions that could reasonably be achieved," and it is specifically directed to assess "economic considerations" as part of this process. Water Code § 13241(c)-(d) (emphasis added). In a similar context, the term "reasonable" was construed to require an analysis of whether the benefits of a particular regulatory scheme justified the costs associated with its implementation. E.g., Appalachian Power Co. v. Train, 545 F.2d 1351, 1361 (4th Cir. 1976). Published decisions like Appalachian Power are directly relevant to the meaning of "reasonable" in Water Code § 13241, and should guide the Regional Board's evaluation of whether the projected cost (conservatively estimated by Regional Board staff at $10.5-17 million) of implementing the proposed Basin Plan amendments is justified by the purported environmental benefit of the amendments (i.e., achievement of water quality objectives in "possibly several hundred years"). Staff Report, pp. 65-66.

Yolo County Counsel is correct that the Regional Board is required to consider economics in establishing water quality objectives. Staff has substantially expanded the estimates of costs of implementation activities and of achieving the proposed water quality objectives. Please see Sections 4.3 and 5.12 and Appendix J of the August 2005 Staff Report. The Regional Board is also required pursuant to the Clean Water Act to establish TMDLs and water quality objectives to restore and protect the beneficial uses of the waters of the state. As described in the staff report, although it may take possibly several hundred years to fully restore the watershed, significant improvements in water quality and fish tissue concentrations are expected to occur relatively quickly in the areas in the vicinity of the mines and where other remedial work is undertaken. In addition, the discharges of mercury in the watershed occurred over many years, and mercury has spread over a large area of the watershed and continues to cause significant environmental harm due to the conditions that allow for creation of methylmercury. It is quite reasonable to expect that it will cost a significant amount of money to make improvements in watershed that suffers from such significant impacts.

Economics Comment 3

The County believes that to the extent these significant costs may be borne by the public (whether by the County or other public entities, with the partial exception of the United States Bureau of Land Management as the owner of certain mines), rather than the current and former owners and operators of the mines that are responsible for non-natural mercury levels in the affected waterways, the projected implementation costs are both inequitable and unreasonable. The County shares the Regional Board's commitment to promoting the wildlife and recreational values of the affected waterways, including Cache Creek. For many years, the County has devoted considerable resources to projects along Cache Creek intended to preserve and enhance these values. However, particularly to the extent that many beneficial County projects may be curtailed by the proposed Basin Plan amendments, the County objects to the expenditure of public monies on projects that Regional Board staff have not demonstrated-through a cost effectiveness analysis or otherwise-will contribute to the achievement of the proposed water quality objectives. In

these circumstances, the County submits that the proposed Basin Plan amendments run counter to the Regional Board's statutory duty to adopt water quality objectives that ensure the "reasonable protection" of beneficial uses, taking into account water quality conditions that can "reasonably be achieved." Water Code § 13241. Other, less stringent water quality objectives should be given serious consideration by the Regional Board.

As described in Staff's responses to Yolo County Counsel's CEQA comments and other comments from Yolo County, the requirements and associated new costs (above costs anticipated to implement the CCRMP) for Yolo County are quite limited in the revised Basin Plan Amendment. The costs and requirements are much less than those described in early versions of the proposed Basin Plan Amendment, which prohibited increases in erosion from some land uses and in methylmercury entering Cache Creek. Staff does not believe that the Basin Plan Amendment as currently proposed will curtail projects conducted by the County or other entities to preserve and enhance wildlife and recreational benefits of Cache Creek.

The proposed Basin Plan Amendment does not direct Yolo County to remove mercury now in the creek beds and banks. Staff disagrees, however, that it would be inappropriate to expend state or federal monies on cleanup or mitigation of mercury from historic mining activities now dispersed in the creeks. For mine cleanups, the State will make every effort to require that responsible parties, including current or former owners and operators, assume the costs. Given that much of the mining occurred more than a hundred years ago, it may not be possible to locate responsible parties that are able to pay for remediation. Reducing mercury loads will benefit not just agencies and landowners in the Cache Creek watershed, but more broadly, fish consumers, the environment, and the general public in Cache Creek, the Yolo Bypass, the Delta, San Francisco Bay and possibly beyond.

Economics Comment 4

The County also believes that Regional Board staff has not performed sufficient analysis to enable the Regional Board to properly weigh "economic considerations" in deciding whether to adopt the proposed Basin Plan amendments. Water Code § 13241(d). For instance, the Staff Report does not discuss the implications of requiring various entities to carry out the various implementation alternatives-mine owners, public agencies, and private parties. The absence of such discussion is contrary to the advice in the memorandum prepared by William Attwater, which calls for consideration of "information provided by discharges or other interested persons regarding the potential cost implications of adoption of a proposed objective." Attwater Memo, p. 5. There is no indication that Regional Board staff have considered or even solicited such information. Again, the ambiguity of many elements of the proposed implementation plan likely precludes affected parties (like the County) from providing such information in the first instance. This problem is compounded by the lack of detail in the Staff Report regarding how the Regional Board prepared its cost estimates. Such information is necessary to enable the County and other interested parties-as well as the Regional Board-to determine whether the projects costs of different implementation alternatives are complete and accurate. These shortcomings must be addressed.

In response to requests from Regional Board members and others, Staff substantially expanded its estimates of costs for implementation actions. Sources of the cost estimates are also provided. The revised costs estimates, plus clarifications regarding "who" and "what" of the proposed implementation actions, should allow the Board and Yolo County to consider economics.

On 28 July 2005, Staff asked Yolo County for an estimate of the cost of designing a wetland restoration project in the CCRMP area. Yolo County did not respond. As described in the response to CEQA Comment 3f, Regional Board solicited and received a prompt, helpful response from the County regarding the costs of implementing erosion control on County roads (9 August 2005). Staff also solicited guidance or estimates of costs from the Natural Resources Conservation Service (erosion control), Caltrans (road maintenance and erosion control), and Tetra Tech EM, Inc. (mine remediation and thermal spring treatment).

Economics Comment 5

Further, as noted in previous comments by the County, the environmental benefits of components of the proposed implementation alternatives (including the regulation of minor erosion control projects, infrastructure maintenance, and wildlife habitat restoration) do not appear to have been thoroughly evaluated by Regional Board staff. A full assessment of the cost effectiveness of these (and other) components of the proposed implementation alternatives is warranted. A cost effectiveness analysis is also a critical tool for enabling the Regional Board to appropriately prioritize and phase regulatory actions, as discussed further in the letter accompanying this memorandum. Importantly, it is also a necessary step toward satisfying the statutory mandate to weigh "economic considerations" as part of the process of establishing water quality objectives. Water Code § 13241.

As stated in the memorandum from S. Vassey, Senior Staff Counsel of the State Water Resources Control Board (27 October 1999) that was provided by Yolo County, the Porter-Cologne Act does not require the Boards to do a formal cost-benefit analysis when adopting water quality objectives. Staff has substantially expanded the cost estimates of likely methods of compliance with the proposed water quality objectives and load allocations to provide the Board with the information necessary to consider economics.

Economics Comment 6

In conclusion, based on information contained in the Staff Report and other documents reviewed by the County, the County does not believe that the Regional Board has a sound factual basis for weighing "economic considerations" in determining whether to approve the proposed Basin Plan amendments. Additional information regarding implementation costs, including the ability of responsible parties to fund projects associated with the implementation alternatives, must be compiled and included in the Staff Report. Before such information can be provided, however, Regional Board staff must clarify many aspects of the proposed Basin Plan amendments, including the implementation alternatives, and provide a complete analysis of the potential environmental effects of the economic impact of the proposed Basin Plan amendments (as discussed in Section I, above). The County requests that the Regional Board take no action on the proposed amendments without this additional information and analysis.

In the August 2005 version of the proposed Amendment and Staff Report, Staff clarified the requirements and responsibilities for implementation actions and monitoring. Staff also corrected the CEQA analysis and expanded costs estimates. Costs for implementation activities, beyond what is already occurring, have been included in the Staff Report. Identification of funding sources for these additional activities is not required unless the Regional Board adopts an agricultural water quality control program. Nevertheless, the Regional Board intends to identify mine remediation and stream cleanups to reduce mercury loads and methylmercury generation in the Cache Creek Watershed as a high priority for grant funding.

F. Response to The Yolo County Flood Control and Water Conservation District (YCFCWCD) letter dated 8 June 2005.

Comment 1
The YCFCWCD requests a 90-day extension of the public input process.

Staff extended the public comment period. Please see response to Comment 1 from Yolo County (Comment Letter E).

Comment 2
2a.The proposed amendments do not c1early define the geographic area regulated. No detailed maps of the regulated area are included, nor is a working definition provided for the terms "active channel" and "10-year flood plain" (terms used to define the regulated area.

The proposed Basin Plan Amendment involves the watersheds of Cache Creek downstream of the Indian Valley Reservoir and Clear Lake Dams, Bear Creek, Sulphur Creek, and Harley Gulch. Maps are provided in the TMDL reports. Regulatory actions will apply to areas within these watersheds. Regional Board staff will identify some of the areas, such properties with soil enriched in mercury, after monitoring is complete. Staff added a footnote with a working definition of the 10-year floodplain to Section 5.11 under Alternative 2 of the August 2005 version of the proposed Basin Plan Amendment staff report. The term "active channel" was replaced with 10-year floodplain.

2b. The Hg concentration in sediment, used as a trigger for regulation, is defined differently seven times (pages 16, 42, 48, 48, 49, 50, and 72).

As requested, the concentration and parameters for mercury-enriched soil and sediment is defined in Section 5.5 and used consistently throughout in the August 2005version of the proposed Basin Plan Amendment staff report.

Comment 3
Flow and sediment loading calculations have not been reviewed by a Certified Engineering Geologist or other experts. Sediment loading calculations and water flow measurements are central to the regulations proposed. Significant errors in loading estimates were found in the peer review version of the proposed Basin Plan amendments. Those previous errors were corrected; however, insufficient time has been allowed for review of the current public review amendments. For example, below 1559 cfs, the flow gauge on Cache Creek at Rumsey Bridge is considered to be inaccurate by DWR.

The public comment period has been lengthened to address requests such as this one. Staff is willing to further discuss data and methods for calculating water budgets and sediment and mercury loads with the YCFCWCD, if desired by the District. Staff did not use the Rumsey flow gauge after water year 2000 because data from it was unreliable. That is why the water and mercury budgets do not go past Water Year 2000.

Comment 4

Other inadequacies exist in the current proposed amendments. They include:
4a. Unclear definitions of responsible parties for both monitoring and implementation.

As requested, the responsibilities for monitoring and implementation have been clarified. Please see the August 2005 revision of the proposed Basin Plan Amendment language.

4b. An incomplete and preliminary cost/benefit analysis is presented as useful planning tool.

Staff significantly expanded the estimated costs, providing estimates for initial expenditure and annual operations and maintenance for each of the implementation actions (See Section 5.12.2 and Appendix J of the August 2005 version of the Staff Report). Discussion of costs of the water quality objectives alternatives was also expanded. The Regional Board is not required to prepare a formal cost/benefit analysis for Basin Planning.

G. Response to Department of Transportation (Caltrans), District 1, Eureka, Letter dated 9 June 2005

Comment 1

The North Region Environmental Engineering Unit (NR-EE) has some concerns as to the extent the BPA for Mercury, as written, will impact the design, delivery, and construction of transportation projects. …Please clarify what the benchmark 'trigger' will be which defines "mercury-enriched" soils.

As requested, the concentration and parameters for mercury-enriched soil and sediment is defined in Section 5.5 and used consistently throughout in the August 2005 version of the proposed Basin Plan Amendment staff report. The definition of "enriched soils" as having 0.2 mg/kg of mercury was an error. The definition now reads, "0.4 mg/kg mercury in fine-grained soil or sediment passing through a 63-micron filter".

Comment 2

The BPA for Mercury makes references to 'fine-grain' soil throughout the document. Page 16 of the DBPA makes reference to fine-grain as particles < 65 microns. Page 72: "…and only the fine sediments (silt/clay fraction, suggested filter size 63 micron)…". Technically speaking, 'fine grained' soils are defined as soils that pass the #200 sieve - or are less than 0.075 mm in size (USCS, AASHTO, ASTM, etc). The BPA for Mercury should contain a definition of fine-grain soils based on accepted industry practice.

To sieve soil samples, Regional Board staff and others (USGS, CDFG) have used Teflon® sieves, which are available in a 63-micron size. A standard metal #200 sieve may interfere with mercury attached to sediment. Staff concur that the standard definition employed by the ASTM and the USCS for fine grain material applies to soils passing through a #200 sieve (i.e. < 75 micron). The data included in Appendix D of the Basin Plan staff report are based on the 63-micron sieve. Also note that the San Francisco Regional Board (Region 2) defined the fine fraction as 62.5 microns in their mercury TMDL report for the SF Bay. Because all of the sediment data collected in the Cache Creek canyon and its tributaries has been analyzed for mercury content using the 63-micron sieve and because of possible interference problems using a metal sieve, staff does not propose to revise the definition of fine grained soils to < 75 microns.

Comment 3

NR-EE recommends a qualifier of 0.1 hectares (0.25-acres). Note that projects of less than 1-acre are not required to submit a Notice of Construction as required by the Statewide Construction General Permit and may not require a 401Certification permit.

Many of the projects conducted in this watershed, particularly those in the 10-year floodplain will be small. To be effective, Staff does not intend that the implementation plan exempt projects that are less than one acre or other minimum size. Because the anticipated time until fish tissue levels in the watershed improve substantially is so long, the implementation plan should be as effective as possible. Staff is therefore not recommending that the Regional Board limit the size of projects covered by the proposed Basin Plan Amendment. For affected projects

outside of the 10-year floodplain, the requirements are to implement erosion control practices. In the 10-year floodplain, project proponents must also monitor turbidity.

Staff recognizes that current storm pollution prevention regulations do not require notification if a project is less than one acre. The Clean Water Act (CWA) essentially requires all projects, past and present, to minimize erosion and discharge into surface waters. Under the CWA, compliance with water quality standards may be required of any project that may affect water quality (CWA Section 401). The Porter-Cologne Water Quality Control Act Section 13260 gives the Regional Board the authority to regulate any discharge of waste. The application for a 401 Water Quality Certification permit is, in effect, a report of waste discharge.

Comment 4

Page 12 states, "Water quality and sediment monitoring is required to ensure compliance with this requirement". NR-EE suggests replacing the word 'is' with 'may be'. Many of the Department's projects are scheduled for construction during the dry season. Some projects may only require 30-days, or less, for construction. If revegetation of disturbed soil areas is 100% successful and there is no active erosion occurring (as may be documented by photographs), then water quality monitoring should not be required.

As requested, the proposed Basin Plan language now reads, "Water quality and sediment monitoring may be required to ensure compliance with these requirements". Staff recognizes that Caltrans has its own monitoring and erosion control plans that particularly cover work conducted near a water body.

Comment 5

On page 13, Compliance to demonstrate 'no net increase' of discharge of mercury-enriched soils allows for photo documentation, surveying, or turbidity monitoring in the Lower Watershed. Is there some reason these same measures of compliance are not mentioned on page 12 for the Upper Watershed?

The headings for "upper watershed" and "lower watershed" were artificial and somewhat misleading in the May version of the proposed Basin Plan language. Text under the "lower watershed" heading included the 10-year floodplain in Cache Creek downstream of Harley Gulch and Bear Creek downstream of the mines. In other places of the report, Staff had referred to the section between Harley Gulch and Rumsey as "Upper Watershed". Staff clarified the text headings and site references in the August 2005 version of the proposed Basin Plan language and the Staff Report.

Staff removed the options for monitoring that include photo documentation and surveying. Entities conducting projects in the 10-year floodplain must comply with the Basin Plan's turbidity objective. Therefore, turbidity monitoring is required. Any other monitoring to verify the effectiveness of erosion control would be in addition to the turbidity monitoring. In order to minimize the costs and impact on entities conducting projects, Staff is proposing that other monitoring not be required.

Comment 6

Will 'erosion control plans' also be required in the Lower Watershed as mentioned on page 12 for the Upper Watershed?

The erosion control plan requirements apply to yet to be determined sources of mercury in the upper watershed. If a tributary watershed is identified to contain elevated concentrations of mercury, then landowners are required to identify activities that result in erosion above natural background levels. If the landowners identify a source or activity, then they would be required to submit an erosion control plan. This requirement does not apply to tributaries in the lower watershed as the mercury-enriched zones are expected to be in the upper watershed.

Erosion control plans will not be required in the lower watershed. Requirements for lower watershed projects, which are those conducted in the 10-year floodplain, have been clarified in the proposed Basin Plan Amendment language.

Comment 7

Note that on page 71, under Water Monitoring, the BPA for Mercury provides a list of recommended monitoring parameters. Here turbidity monitoring is not listed. NR-EE staff recommends that turbidity monitoring be included in the list of recommended parameters.

As requested, turbidity monitoring was added to the list of water quality monitoring parameters.

Comment 8

Page 63, in the last paragraph, states: "These alternatives require that all of the major sources of mercury and methylmercury in Harley Gulch, which are the mines and the downstream wetlands, be actively remediated. Erosion in the East Branch of Harley Gulch related to Caltrans operations will also be controlled". NR-EE recommends to strike the sentence with the reference to Caltrans. This sentence suggests that the 'operations' by the Department are a major source of mercury. A Site Investigation Report prepared by Shaw Environmental, Inc., for the Department investigated the mercury and methylmercury concentrations at this specific location and found low levels.

Staff agrees. Because erosion control at Caltrans projects is part of the baseline condition, (i.e., it is already occurring), the reference to Caltrans was removed from the discussion of potential water quality improvements (Section 5.12.1). The report now reads, “These alternatives require that all of the major sources of mercury and methylmercury in Harley Gulch, which are the mines and the downstream wetlands, be actively remediated. Erosion in the East and West Branches of Harley Gulch related to road construction will also be controlled.”

H. Response to John Hopkins, President, Institute for Ecological Health, Davis, Letter sent via email, 9 June 2005

Comment 1
I request that you extend the public comment period.

The public comment period has been extended. Staff has revised the proposed Basin Plan Amendment based on comments received prior to and during the 23 June 2005 public hearing. Staff anticipates that the public hearing will be continued on 20 or 21 October 2005.

Comment 2
I also request that you initiate a discussion on the potential effects of the proposed action on removal of invasive exotic plant species, on riparian and wetlands restoration projects and on possible flood control by levee setbacks on the lower Cache creek. It is not at all clear what the impact of the proposed action will be on these beneficial uses.

Staff has corresponded extensively with the County of Yolo and other stakeholders regarding the potential impacts of the proposed Basin Plan Amendment on invasive species plant removal and habitat restoration projects. Stakeholders involved in these discussions included the Yolo County Flood Control and Water Conservation District, the Cache Creek Technical Advisory Committee, Cache Creek Conservancy, gravel miners, landowners, and the Yolo County Resource Conservation District. The USACE is aware of the proposed Basin Plan Amendment but has not provided comments.

Staff does not anticipate that the proposed plan will adversely affect invasive species plant removal, habitat restoration, or flood control efforts. Projects conducted in the 10-year floodplain (active channel) of Cache Creek must employ management practices to control erosion from the project and verify the erosion control by monitoring for turbidity. These requirements are not new with the proposed Basin Plan Amendment, nor should they hinder projects from being completed. The proposed Basin Plan Amendment does require that new wetlands projects limit discharge of water to Cache Creek, but does not prevent these projects from being created. Please see response to comments from Yolo County for more details.

Comment 3
This discussion should involve a wide range of parties including the CalFed ecosystem restoration staff, local restoration and watershed groups, private landowners, local governments, other organizations and the interested public. These discussions need to be widely advertised.

The Cache Creek watershed TMDL report has been available for public review and discussion since November 2003. Staff held a public scoping meeting to gather input on environmental review issued in March 2004 and the first of multiple meeting with stakeholders about the proposed Basin Plan Amendment in November 2004. Staff developed an interested parties list that included private landowners, public, commercial, and non-profit interests in the watershed. In May 2004, Staff sent notice of the Cache mercury planning effort to a large list (more than 2000 names) of persons and entities who have previously expressed interest in Basin Planning

issues, inviting those desiring further information on Cache Creek to become part of Staff's Cache Creek contact list. In addition, notice of public meetings and documents were circulated to mercury interests outside of the Cache Creek watershed through the Delta Tributaries Mercury Council.

Staff believes that notices of the Basin Planning process were widely disseminated. Nevertheless, some interested person may have been missed. Please provide Staff with contact information for any interested persons who have not been involved.

The topic of restored wetlands generally causing increases in methylmercury production and loading is not new. It has been discussed at the CalFed Science conferences and was the topic of a paper produced under the CalFed directed action mercury project (http://loer.tamug.tamu.edu/calfed/DraftReports.htm).

Comment 5

The proposed action should be modified and / or expanded upon to incorporate the results and to clarify that the (modified) proposed action will not have a significant adverse impact on restoration and other projects.

Please see the **General Response to Comments**. Staff has substantially revised requirements for projects in the 10-year floodplain after numerous conversations with stakeholders. Under the proposed revisions, Staff expects that the proposed Basin Plan Amendment will not have significant adverse effects on wetland restoration, invasive plant species removal, or flood control.

I. Response to comments made in County of Lake, Public Works Department letter dated 10 June 2005

Comment 1

In the proposed Amendment, the section "Erosion Protection – Upper Watershed" requires the implementation of "the highest level of management practices to control erosion." The "highest level of management practices" is undefined. To be consistent with other storm water permits and for use of a defined term, we recommend the wording be revised to require the implementation of "best management practices".

The proposed Basin Plan amendment has been revised to read, "For paved roads, county and agency road departments shall implement the Caltrans or equivalent management practices to comply with these requirements. For unpaved roads, county and agency road departments shall implement all reasonable management practices to control erosion during construction and maintenance activities. Within two years of approval of this amendment, county and agency road departments shall submit information describing the management practices that will be implemented to control erosion from areas with enriched mercury."

The August 2005 version of the Staff Report discusses road management practices in greater detail. The term "best management practice" (BMP) was dropped from the requirements for all entities except Caltrans. Caltrans has a storm water management plan with BMPs that have been certified by the State Water Resources Control Board. The Regional Board has not certified other management practices; therefore, the term "best" is not used. Management practices being used by the County and other entities may be highly effective in controlling erosion. In the proposed Amendment language, the Board would ask for a description of those practices.

Comment 2

In the proposed Amendment, the section "Cache Creek, Bear Creek, and Harley Gulch" requires the monitoring of sediment to be in the silt/clay fraction. This section refers to the size being less than 65 microns. The proper size is less than 62.5, or 63, microns.

The staff report was revised to use 63-micron for consistency.

Comment 3

We are concerned that the soil and sediment monitoring parameters only include the silt/clay (<63 micron) fraction. Review of the data in Appendix D indicates significant portions of the mercury in the stream sediments are within the fine (63 micron – 1 mm) and coarse (1 – 2.8 mm) fractions of the sediment. In several locations, the mercury concentration in fine grain sediments is below the hot spot criteria, while the mercury concentrations in medium and course grain sediments are above the hot spot criteria. With the proposed sampling criteria, high concentrations of mercury in the medium and coarse grain sediments will be missed, and compliance may be assumed. We recommend the soil and sediment sampling required for mine and remediation projects include monitoring of all three sediment grain sizes.

Staff agrees that in bank sediments contaminated with mining waste, concentrations of mercury can be highly variable, with the highest concentrations sometimes present in the medium or coarse-grained fractions. Although fine-grained particles typically have higher concentrations of mercury than larger particles, a piece of cinnabar in a larger-grained sample can change the pattern. For evaluating the future loading and feasibility of cleaning up contaminated creek banks, staff would examine mercury concentrations in the three size fractions in samples from the surface and from holes dug into the deposit. This approach was taken by staff of the CDFG Moss Landing Laboratory in evaluating the mercury load in the Harley Gulch delta (CDFG, 2004a).

In areas of elevated mercury outside of a thermal spring deposit or mine waste, most of the mercury would be transported by erosion of fine-grained soil. This soil is expected to be more homogeneous than in below a thermal spring or mine site. Therefore, it is appropriate to focus on the fine-grained fraction to identify areas of enriched soil and assess loading. This approach limits monitoring costs and provides a consistent basis of comparison between samples.

J. Response to City if Woodland letter dated 21 June 2005

Comment 1

I am writing to request that the Central Valley Regional Water Quality control Board (RWQCB) extend the public comment period for the Cache Creek TMDL by 90 days at the hearing on June 23, 2005.

Staff extended the public comment period. Please see response to Comment 1 from Yolo County (Comment Letter E).

Comment 2

The City of Woodland is concerned that the TMDL unfairly burdens local entities by regulating all activities that may disrupt sediment containing mercury, rather than focusing on the sources that contribute the highest amount of mercury to Cache Creek (e.g. abandoned mercury mines).

Staff has worked extensively with Yolo County and other stakeholders to address this concern. The focus of the proposed plan remains on controlling ongoing inputs from the most concentrated sources of mercury, which are in the upper watershed: inactive mines, stream beds and banks contaminated with mine waste, and upland areas having soil that is enriched in mercury. In the case of the mines, the proposed Basin Plan Amendment would require very significant (95%) reductions in the current loads.

Please see the August 2005 version of the revised Basin Plan language, the revised Staff Report, and the **General Response to Comments**. Requirements for the Cache Creek watershed downstream are limited. The goal for the lower watershed is to maintain existing conditions, so that improvements from upstream are not reversed by downstream activities. In the revised Basin Plan language, projects conducted in the 10-year floodplain must: 1) implement management practices to control erosion and 2) monitor for turbidity and report results to the Regional Board. The proposed Basin Plan Amendment would also require that any new discharge, including restored wetlands, not increase methylmercury concentration in Cache or Bear Creeks. The Regional Board does not intend to limit restoration or improvement projects. The TMDL and proposed Basin Plan amendments are expected to improve water quality and protect humans and wildlife that consume fish from the Cache Creek watershed. Wetlands projects would be able to discharge water to the creek, as long as concentrations in the creek do not increase.

Comment 3

The TMDL also will negatively impact flood control, wildlife habitat restoration, invasive plant species removal, bank stabilization, and other projects by requiring expensive erosion control plans and mercury monitoring without demonstrating the benefit from these requirements.

Staff has corresponded extensively with the County of Yolo and other stakeholders regarding the potential impacts of the proposed Basin Plan Amendment on invasive species plant removal and

habitat restoration projects. Stakeholders involved in these discussions included the Yolo County Flood Control and Water Conservation District, the Cache Creek Technical Advisory Committee, Cache Creek Conservancy, gravel miners, landowners, and the Yolo County Resource Conservation District.

Following the June public hearing, staff revised the proposed Basin Plan Amendment language for the lower watershed. Staff does not anticipate that the proposed plan will adversely affect invasive species plant removal, habitat restoration, or flood control efforts. Projects conducted in the 10-year floodplain (active channel) of Cache Creek must employ management practices to control erosion from the project and verify the erosion control by monitoring for turbidity. These requirements are not new with the proposed Basin Plan Amendment, nor should they hinder projects from being completed. The proposed Basin Plan Amendment does require that new wetlands projects limit discharge of water to Cache Creek, but does not prevent these projects from being created. Please see response to comments from Yolo County for more details.

Comment 4

Finally, the TMDL contains vague and inconsistent requirements that make it impossible to determine who is responsible for tasks in the implementation plan.

The "who" and "what" of requirements for monitoring, erosion control, and remediation have been clarified in the August 2005 version of the proposed Basin Plan Amendment.

Comment 5

The City of Woodland is concerned with the potential impact of the TMDL on the implementation of the final HCP/NCCP (Habitat Conservation plan/Natural Community Conservation Plan). Any increase in cost of implementing the HCP/NCCP to comply with the mercury TMDL will take funds away from habitat enhancement activities that may have greater overall benefit to endangered or threatened species than a slight reduction in mercury inputs to Cache Creek.

As described above, Staff does not expect that the revised Basin Plan language (August 2005 version) will hinder habitat enhancement. Staff is not proposing that project proponents monitor for mercury. Projects conducted in the 10-year floodplain must monitor turbidity to show compliance with the Basin Plan's turbidity objective, which existed prior to the proposed mercury plan. Projects conducted in the 10-year floodplain must also control erosion from the project, which is already a requirement of the 404 Permit issued by the US Army Corps of Engineers for working in the creek.

The proposed Basin Plan language goes beyond existing requirements to state that for cases in which turbidity objectives are not be met despite implementation of reasonable erosion control management practices, the project proponent must conduct projects elsewhere that offset the increased turbidity and mercury load from the initial project. In that instance, increased costs may occur from offset activities (see page I-11, in Appendix I of the August 2005 staff report).

Staff welcomes more detailed comments from the City of Woodland on potential conflict with the habitat conservation plan.

K. Response to letter to Yolo County Habitat Conservation Joint Powers Agency dated 21 June 2005

Comment 1
We are asking that the RWQCB grant a 90-day extension of the public comment period.

Staff extended the public comment period. Please see response to Comment 1 from Yolo County (Comment Letter E).

Comment 2
We are concerned that important conservation and restoration efforts anticipated in or near Cache Creek under the proposed Yolo County NCCP/HCP will be rendered infeasible due to regulatory and economic burdens that have yet to be clearly outlined in the proposed Implementation Plan.

Of particular concern to the JP A is the potential for the proposed TMDL to impact planned conservation efforts along Cache Creek associated with several of the species proposed for inclusion in the NCCP/HCP, such as the Bank Swallow. The JP A is deeply concerned, for example, that compliance with the draft Implementation Plan will significantly increase the costs of the State's Bank Swallow Recovery Plan, thereby reducing possible habitat restoration opportunities due to the limited funds that are available. The State's Recovery Plan for Bank Swallow calls for developing set-back levees and riverine meander belts.

Staff has reevaluated and clarified requirements and responsibilities for monitoring, erosion control, and remediation in the August 2005 version of the proposed Basin Plan Amendment. Staff also significantly expanded the cost estimates (Section 5.12.2 and Appendix J).

Staff does not anticipate that the proposed plan will adversely affect conservation and restoration efforts. Projects conducted in the 10-year floodplain (active channel) of Cache Creek must employ management practices to control erosion from the project and verify the erosion control by monitoring for turbidity. Turbidity monitoring is needed to show compliance with the Basin Plan's turbidity objective, which existed prior to the proposed mercury plan. Projects conducted in the 10-year floodplain must also control erosion from the project, which is already a requirement of the 404 Permit issued by the US Army Corps of Engineers for working in the active channel. In the revised Basin Plan Amendment, staff is not proposing that project proponents monitor for mercury.

The proposed Basin Plan Amendment does require that new wetlands projects limit discharge of water to Cache Creek, but does not prevent these projects from being created. Please see response to comments from Yolo County for more details.

Staff welcomes more detailed comments from the Yolo County Habitat Conservation Joint Powers Agency on potential conflict with the habitat conservation plan.

L. Response to US DOI Fish and Wildlife Service letter received 22 June 2005 (FWS/EC-05-038)

Comment 1

In April 2005, the Central Valley Regional Water Quality Control Board (RWCQB) received a letter from the Yolo County Board of Supervisors, commenting on the RWQCB's Total Maximum Daily Load (TMDL) for Mercury in Cache Creek, Bear Creek and Harley Gulch. Attached to this letter was a report by Dr. D. Slotton, in which he stated that the Regional Board's recommended water quality objectives were unnecessarily stringent.

The U.S. Fish and Wildlife Service's (Service) Sacramento Fish and Wildlife Office evaluated the USEPA's human health methylmercury criterion and the Regional Board's alternatives for water quality objectives with respect to their protectiveness for wildlife. The general methodology that the Service developed for the human health criterion evaluation was peer reviewed by four, independent mercury scientists.

The Service recommends that you retain the Cache Creek TMDL wildlife targets presented in the RWQCB' s recommended alternative. Dr. Slotton's response does not support changing the proposed objectives.

No response needed.

Comment 2

The Service agrees that application of Dr. Slotton's methodology would provide a more accurate risk assessment for wildlife if sufficient monitoring were performed in the Cache Creek watershed. Additional data could be used to better characterize mercury concentration relationships between aquatic trophic levels, between aquatic prey and terrestrial consumers, and to better define the dietary composition for bald eagles foraging in the Cache Creek watershed. It is important to note that "more accurate" does not necessarily equal "less stringent".

Regional Board staff agrees that more information about concentrations of mercury in various trophic levels in the food web in Cache Creek and a detailed survey of bald eagle dietary habits in the Cache Creek watershed would be useful to refine methylmercury tissue concentrations that protect wildlife species. Staff is willing to review new information and revise the water quality objectives if necessary.

M. Responses to comments given by Vicki Murphy, Family Water Alliance, letter dated 23 June 2005

Comment 1

Given other issues of risk and public policy that must be addressed, what is the priority that should be assigned to reducing mercury from Cache Creek?

Reducing mercury contamination in the Cache Creek watershed is a high priority because:

a) Mercury is a potent neurotoxin that can impair growth and development of humans and wildlife species, especially early life stages. Concentrations of mercury in Cache creek fish are above levels needed to protect human and wildlife regularly eating the fish. The State's Office of Environmental Health Hazard Assessment has issued an advisory for consumers of fish from Cache and Bear Creeks.
b) Cache Creek provides almost half of the mercury entering the Sacramento-San Joaquin River Delta Estuary. Fish in the Delta also have mercury levels that pose risk to people eating the fish. Staff from the California Department of Health Services recently reported on subpopulations whose consumption of local fish puts their intake of methylmercury above safe levels.
c) There are fourteen mines in the Cache Creek Watershed that have never been remedied and continue to erode and contribute mercury to the creeks. The total estimate of mercury remaining in waste rock, ore and tailings piles on the mine sites that could discharge to the creeks is 34,000-52,000 kg. The ongoing discharge should be stopped as soon as possible.

Comment 2

What exactly will be the costs and benefits to the Bypass and the Delta by reducing the amount of mercury coming from the Cache Creek watershed?

Reducing mercury in the Cache Creek watershed will provide significant benefits to Cache Creek and the Delta region. As described in the answer to question #1, Cache Creek provides almost half of the mercury entering the Delta and is the major source to the Yolo Bypass. Through the proposed implementation plan, current mercury loads from will be reduced by an estimated 60kg/year. Improvements to the Cache Creek Sediment Basin that will be proposed as part of the Delta Mercury TMDL could decrease loads to the Yolo Bypass by an additional amount. Addressing mercury in Cache Creek is important not only to decrease loads of mercury; it will also decrease concentration of mercury in surficial sediment. The product of methylmercury is directly and positively correlated with the concentration of mercury in surficial sediment. Sediment from cache Creek is highly contaminated (0.5 mg/kg), relative to other sources of mercury to the Delta. Regional Board Staff does not expect mercury concentrations in fish to decline unless mercury concentrations in sediment are reduced. Staff's recommended implementation alternative for the Cache Creek TMDL is estimated to cost $14 million in the initial phase of active remediation (mine closures, sediment removal or stabilization) and $700,000 per year thereafter for maintenance of remediation structures, monitoring, and public outreach.

Comment 3
Who will accrue the TMDL costs and benefits?

Estimated costs and responsible parties are described in detail in the revised version (August 2005) of the Staff Report and proposed Basin Plan Amendment language. Constructing and maintaining controls at the inactive mine sites is the primary cost ($11 of $14 million estimated initial costs of the recommended implementation plan). If mine cleanups are required, the cleanup orders will be addressed to current and previous mine owners. It is likely, though, that public funds will be needed to remediate the mines. Proposed requirements for other, private landowners are limited. In areas upstream of Rumsey having enriched levels of mercury in sediment (Staff will identify), landowners would inform the Regional Board of activities on their land that potentially cause erosion and manage those activities to limit erosion.

In the lower watershed, entities performing activities in the 10-year floodplain would be required to implement erosion control practices and comply with existing Basin Plan water quality objectives, including turbidity. These requirements and associated costs are "baseline" meaning that they are already expected as part of the 404 permit, the 401 Water Quality Certification, and plans needed for these projects. There are new costs for local entities associated with the proposed Basin Plan Amendment, namely monitoring and minimizing the discharge of methylmercury from new wetlands and impoundments.

Benefits accrue to landowners, other stakeholders in the Cache Creek watershed, Yolo Bypass, and the Delta, and the general public of eventually removing the mercury impairment of these water bodies.

Comment 4
If the costs and benefits do not accrue to the same parties, why not, and what is a just resolution? I add that it appears that only the State will benefit from this TMDL process by receiving any revenues and by taking receivership of lands from "willing sellers" (forced by the TMDL to sell).

Public entities, in particular the State, Counties of Lake, Colusa, and Yolo, and the USBLM, are expected to bear costs under the proposed implementation plan. The Regional Board will oversee implementation and monitor water quality. County governments will be responsible for public outreach and education. Any public entity conducting or funding projects in the 10-year floodplain of the creeks (i.e., Counties, Resource Conservation Districts, CalFed) is responsible for managing erosion from those projects. Conversely, benefits of a watershed cleared of mercury impairment accrue to citizens of these counties and the general public.

It is not the intention or expected outcome of this TMDL to force landowners into selling their land in order to fund or because they cannot meet requirements. As mentioned above, proposed requirements for private landowners are limited. With the exception of mine owners, the proposed Basin Plan Amendment does not assign load reductions to private landowners. Upper watershed landowners having soil enriched in mercury would be required to implement management practices to control erosion (not "best management practices", as there is no set of practices that landowners would be required to follow). Owners of land in the 10-year floodplain

of Cache Creek (between Harley Gulch and Rumsey) and Bear Creek (from the Bear Creek mines to Cache Creek) could be asked to submit a report of the feasibility of removing or stabilizing mercury-contaminated creek sediment on their property. Regional Board staff has committed to identifying creek bed and bank areas with high concentrations of mercury that warrant a feasibility study. Most of the riparian land in these stretches of Cache and Bear Creeks is public, not private.

Comment 5

What is the timeline for the TMDL to be in effect and applied? It is important that funding for reclamation and offset locations be provided and decided early, so that landowners and industries do not just become agency purses.

The proposed Basin Plan Amendment would be in effect after it is approved by the USEPA, typically 6-9 months after it is adopted by the Regional Board. The proposed Basin Plan Amendment language contains a schedule for completing requirements, which range from conducting additional studies (2006) to cleaning up mines and sites of contaminated sediment, if identified (2011). The proposed Basin Plan Amendment allows the Regional Board to adjust remediation schedules for the mines or other sites, as necessary, during regularly scheduled reviews of the Cache Creek implementation plan.

Wastewater treatment plants may choose to participate in an offset program, which would allow them to reduce mercury loads elsewhere instead of reducing loads from the plant. Regional Board staff described offset programs as potential sources of funding for projects in the Cache Creek watershed. Regional and State Water Board staff are currently working with the SRCSD to develop an offset program and identify candidate sites.

Comment 6

Is it true that Sulphur Creek will get a "pass" for TMDL contributions and the reason for eliminating its responsibility is because it doesn't have fish?

Staff will develop a complete TMDL for Sulphur Creek. It is not receiving a "pass" for any requirements. The proposed Basin Plan Amendment language for the Cache Creek watershed contains implementation for Sulphur Creek, including a methylmercury load allocation to be met at the flow gauge on Sulphur Creek and total mercury allocations for the eight inactive mines in the Sulphur Creek watershed.

Even though the proposed Basin Plan Amendment contains implementation plans for the entire watershed, the USEPA cannot approve the Sulphur Creek TMDL until the Regional Board adopts a second Basin Plan Amendment addressing water quality objectives and beneficial uses in Sulphur Creek. Staff is working on this second Amendment proposal and intends to bring it before the Board in 2006. The proposed Cache Creek water quality objectives are not applicable to Sulphur Creek because it does not have resident fish. Completing the TMDL for Sulphur Creek will involve presenting water quality targets in the form of concentration of mercury in water or suspended sediment and removing the designation of Sulphur Creek as a source of drinking water. Please see Section 4.3 of the Cache Creek Amendment Staff Report for details.

Comment 7

If there might be long waiting periods to begin and/or complete reclamation activities because of regulatory inefficiencies resulting in TMDL fees piling up year after year, will there by ANY provisions for the TMDL fees to be waived?

The proposed Basin Plan Amendment does not contain any fees or fee schedule. Responsible parties of the mine sites (current and previous landowners and miners) will be accountable for meeting the proposed load reductions. The proposed Basin Plan Amendment does not mandate fines for non-compliance. Rather, the proposed Basin Plan Amendment allows the Regional Board to adjust remediation schedules for the mines or other sites, as necessary, during regularly scheduled reviews of the Cache Creek implementation plan. Details of the mine cleanups will be developed in separate cleanup orders for each of the mine sites. It is possible for the Regional Board to impose fines on responsible parties who clearly do not comply with orders to cleanup their discharge of waste.

Comment 8

When and where conflicts between interests arise, exactly how are they to be evaluated and adjudicated?

A major goal of the public workshops, hearings, and review of the documents is to uncover potential conflicts between mercury control and other interests prior to adoption of the Basin Plan Amendment. This proposed Amendment contains a provision for the Regional Board to review the Cache Creek mercury plan every five years. If conflicts arise after the Regional Board adopts the Amendment, they may be addressed during the future review periods.

Comment 9

A quote from page 3 of the May 2005 Science Action publication (California Bay Delta Program), "but Cache Creek's megadoses [of mercury] to the system only come down after huge storms" validates the value of upland and off-stream reservoirs to minimize mercury migration during storms. What actions will this Board and the Regional Board scientists take if the Wild and Scenic designation on North Fork and the Cache Creek canyon creates a conflict with meaningful mercury reclamation activities?

It is true that the largest loads of mercury from the mine sites discharge during major erosional events. The best way to address this problem is to remediate the mine sites as soon as possible. Effective mine site remediation would prevent thousands of kilograms of mercury now on the sites from moving into Cache Creek. Staff does not expect that the designation of the Cache Creek canyon as a wild and scenic river will hinder mercury cleanup. Assembly Bill 1328 states, "The designation of Cache Creek… shall not impair or affect in any activities to remediate mercury pollution; provided that this activity does not involve the construction of a dam, reservoir, or water impoundment facility with the segments of Cache Creek designated…" Staff does not expect that the provision for no water impoundments will affect cleanup. The confluence of Harley Gulch with Cache Creek, which would be in the designated area, may not be a good location for an impoundment to trap sediment, because it would likely be inundated by Cache Creek water in high flow events. Small sediment reservoirs below the Bear Creek or Sulphur Creek mines are not prevented by the Wild and Scenic legislation.